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Stakeholder Engagement analysis and performance over time

Análise do Engajamento de *Stakeholders* e Desempenho ao longo do tempo

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Tese apresentada ao Departamento de Administração da Faculdade de Economia, Administração, Contabilidade e Atuárias da Universidade de São Paulo para obtenção do grau de Doutor em Ciências.

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"*O progresso do homem tem uma fase poética na qual ele imagina o mundo, depois uma fase científica na qual ele filtra e testa aquilo que imaginou*".

George Santayana

RESUMO

Stocker, F. (2020). Análise do Engajamento de Stakeholders e Desempenho ao longo. (Tese de Doutorado). Faculdade de Economia, Administração, Contabilidade e Atuárias, Universidade de São Paulo, São Paulo.

A literatura sobre o engajamento de stakeholders afirma que os relacionamentos cooperativos podem ser obtidos por meio de estratégias de engajamento que vão da comunicação até o envolvimento, levando, portanto, a um nível de comprometimento e engajamento maior entre organização e seus stakeholders. Ainda assim, não há evidências claras na literatura que apoiem essa ideia de que níveis mais elevados de engajamento têm um efeito positivo no desempenho. Esta tese visa abordar essa lacuna, analisando as diferentes estratégias de engajamento e entendendo como as diferentes nuances das relações organização e *stakeholders* afetam a qualidade do engajamento e seu impacto no desempenho da empresa ao longo do tempo. Este estudo foi realizado em organizações do setor de energia que divulgam seus relatórios de sustentabilidade por meio da plataforma internacional GRI. Este estudo tem dois desenhos metodológicos distintos: i) etapa qualitativa: coleta de dados dos relatórios de sustentabilidade e aplicação do método de análise de conteúdo às ações de engajamento ao longo de 6 anos. ii) etapa quantitativa: para avaliar o impacto das ações de engajamento no desempenho social (CSP), ambiental (CEP) e financeiro (CFP). A análise multivariada é realizada por meio de regressão de dados em painel e análise de mediação. Os resultados desta pesquisa são reveladores e contrastam com alguns dos argumentos teóricos sobre ganhos e retornos financeiros, sociais e ambientais, ao mesmo tempo que enfatizam que embora o desempenho ao longo do tempo seja positivo, quando os diferentes níveis são avaliados e seus efeitos no curto e no longo prazo, as relações mais intensas e com alto nível de engajamento não têm uma relação positiva com o desempenho social de longo prazo, mas sim de curto prazo. O projeto de pesquisa pretende elucidar questões-chave dos estudos de estratégia, relacionadas às práticas que geram melhores resultados e desempenho para as empresas. Visa também dar uma contribuição gerencial ao esclarecer quais estratégias e ações têm maior impacto ao longo do tempo no desempenho da empresa e podem melhorar a gestão das empresas e atender aos interesses de seus stakeholders.
Palavras-chave: Engajamento de Stakeholders. Desempenho. Gestão para Stakeholders. Relatórios de Sustentabilidade.

ABSTRACT

Stocker, F. (2020). *Stakeholder Engagement analysis and performance over time.* (Tese de Doutorado). Faculdade de Economia, Administração, Contabilidade e Atuárias, Universidade de São Paulo, São Paulo.

The literature on stakeholder engagement states that cooperative relationships can be achieved through engagement strategies that range from communication to partnership and involvement, thus leading to a greater level of commitment and engagement between the organization and its stakeholders. Despite this, there is no clear evidence in the literature to support this idea that higher levels of stakeholder engagement have a positive effect on the company's performance. This thesis aims to address that gap by analyzing the different engagement strategies and understanding how different nuances of stakeholder-organization relationships affect the quality of the engagement and its impact on firm performance over time. This study was carried out in organizations in the energy sector that disclose their sustainability reports through the international GRI platform. This study has two distinct methodological designs: i) qualitative stage: data collection from sustainability reports and application of the content analysis method to the engagement actions over the 6 years. ii) quantitative stage: to assess the impact of engagement actions on the social (CSP), environmental (CEP), and financial (CFP) performance of companies over time. The multivariate analysis is mainly carried out through panel data regression and mediation analysis. The results of this research are revealing and contrast with some of the theoretical arguments about financial, social and environmental gains and returns, while emphasizing that although performance over time is positive, when the different levels are evaluated and their effect on the short and in the long term, the most intense relationships with a high level of engagement do not have a positive relationship with social performance in the long term, but in the short term. The research project intends to elucidate key issues of strategy studies, related to practices that generate better results and performance for companies. It also aims to provide a managerial contribution by clarifying what strategies and actions have had a greater impact over time on company performance and can improve the management of companies and serve the interests of their stakeholders.

Keywords: Stakeholder Engagement. Performance. Managing for Stakeholders. Sustainability Report.

LIST OF ILLUSTRATIONS

LIST OF TABLES

TABLE OF CONTENTS

1. INTRODUCTION

Stakeholder theory has developed in the last three decades and its employment is increasingly present in various management fields. During its evolution, stakeholder theory has raised different questions for corporate management: how to identify and classify stakeholders, how to analyze their interests, which stakeholders to prioritize, which strategies to use for addressing them, as well as which engagement practices to use, among other topics (Freeman, 1984; Mitchell, Agle, & Wood, 1997; Harrison, Bosse, & Phillips, 2010; Nolland & Phillips, 2010; Bridoux & Vishwanathan, 2020).

Stakeholder theory is articulated under two core questions (Freeman, 1994). The first question relates to what the company's purpose is, which helps managers define the value they create for their main stakeholders. This drives the company forward and enables it to achieve exceptional performance, both in terms of its aim and in terms of financial measures. The second question covers the responsibility that managers have to their stakeholders. This is reflected in how the managers wish to do business and, more specifically, what types of relationships they want and need to create with their stakeholders to achieve their aim (Freeman, Wicks, & Parmar, 2004).

Thus, managers are not only responsible for maximizing shareholder value, as proposed by the theory of the firm, but also for the well-being of other parties affected by corporate decisions, which can help or hinder in achieving the company's objectives (Cragg & Greenbaum, 2002; Phillips, Freeman, & Wicks, 2003).

Stakeholder theory understands the firm as a nexus of relationships between actors in which each actor has interests and influences the outcomes of the firm (Freeman, 1984). From a stakeholder perspective, it is important to manage the relationships between an organization and its various stakeholders (Freeman, Harrison, & Wicks, 2007). An underlying premise of stakeholder theory is that stakeholders will cooperate more with the organization if they perceive their interests are being best served. Stakeholder theorists claim that managers should create and maintain cooperative relationships with stakeholders (Greenwood & Van Buren, 2010; Bridoux & Stoelhorst, 2014, Jones, Harrison & Felps, 2018). Such behavior would increase the potential for value creation, given that people tend to treat the other party fairly within an exchange when they realize that party is behaving fairly towards them and to other people as well (Bosse, Phillips, & Harrison, 2009).

The perception of organizational justice may lead stakeholders to make more effort in their relationship with the company. Given the interdependence between an organization and its stakeholders, the survival and success of both are in many ways determined together. In this sense, promoting cooperation with stakeholders, which benefits both parties and the relationship between them, is a fundamental premise of stakeholder theory (Bosse & Coughlan, 2016; Bundy, Vogel, & Zachary, 2018).

To develop a dialogue with different stakeholder groups, companies worldwide have published social and sustainability reports to communicate their corporate social responsibility practices (Hsu, Lee, & Chao, 2013; Campra, Esposito, & Lombardi, 2020). In addition to financial reports, which are a source of interest mainly to shareholders, sustainability reports communicate and disseminate information about corporate actions concerning the interests of both stakeholders and society (Torelli, Balluchi, & Furlotti, 2020; Stocker, Tontini & Sarturi, 2020).

This discussion has permeated organizational management practices, as is observed in their annual reports, which include stakeholder maps, materiality matrices, and stakeholder engagement and relationship practices. Prominent authors have recently shown an interest in this, particularly with regard to stakeholder engagement strategies and their influence on organizational performance, sustainable value creation, and relationships with the stakeholders themselves (Freeman, Kujala, Sachs & Stutz, 2017; Grushina, 2017; Sulkowski, Edwards, & Freeman, 2018; Kujala & Sachs, 2018; Langrafe, Barakat, Stocker & Boaventura, 2020).

Increasing complexity in the business environment has driven companies to develop engagement practices to achieve global sustainable development, and these practices, such as stakeholder engagement, have proven to be potential sources of competitive advantages, in addition to facilitating the process of creating value for stakeholders and society (Freeman et al., 2017; Sulkowski, Edwards, & Freeman, 2018; Maher & Buhmann, 2019).

In view of this, this project contributes to the understanding the phenomenon of value creation for stakeholders through engagement strategies, extending the limits of the theory, as highlighted by Freeman et al., (2017) when they state that it is necessary to understand what happens in the relationship with stakeholders and how to create value and improve the relationship with them.

1.1 Research Problem

One current challenge of stakeholder theory lies in explaining how organizations create and distribute value to stakeholders in such a way that the output of this process is beneficial to both parties. The state of the art of stakeholder theory resides in a growing line of research developing an alternative explanation for how managers define their value creation strategies. This line of thought argues that the way relationships are built and maintained, whether via justice, reciprocity, or power, can better explain managers' decisions regarding stakeholder interests. Such thinking assumes that this type of relationship obtains greater engagement and consequent value creation and better results for the company by the stakeholders (Bosse et al., 2009; Harrison & Bosse, 2013; Garcia-Castro & Aguilera, 2015; Tantalo & Priem, 2016; Sulkowski, Edwards, & Freeman, 2018).

The current literature tends to focus on describing engagement and its characteristics (Taylor & Kent, 2014), or conflates stakeholder engagement with the associated concept of dialogue (Agudo-Valiente, Garcés-Ayerbe, & Salvador-Figueras, 2015). Across all bodies of literature, however, there is limited theorizing of stakeholder engagement, and little or no theorizing of its implementation. The engagement literature derives from two different, though complementary, perspectives on corporate social responsibility and the stakeholder strategy approach; one has focused on developing communication engagement initiatives and the other on developing relationships. These different perspectives have been used in various articles to characterize stakeholder engagement initiatives (Morsing & Schultz, 2006; Rasche & Esser, 2006; Van Huijstee & Glasbergen, 2008; Herremans, Nazari, & Mahmoudian, 2016; Moratis & Brandt, 2017; Lane & Devin, 2018; Boiral & Heras-Saizarbitoria, 2020).

Although the literature reveals the importance of stakeholder engagement, there is a lack of studies that explore this subject and that contribute to the development of stakeholder theory (Stocker, Arruda, Mascena & Boaventura, 2020). It is this point in particular, involving exploring engagement strategies and practices and their possible relationship with corporate performance, which this research seeks to address and for which it aims to advance the knowledge.

1.2 Research Gap

Stakeholder theory has long argued that cooperative relationships with stakeholders – i.e., relationships characterized by trust and reciprocity – help firms create more value in the form of higher profits, as well as for their stakeholders (Harrison, Bosse, & Phillips, 2010; Bridoux & Stoelhorst, 2016; Jones, Harrison, & Felps, 2018). The literature on stakeholder engagement further proposes that these cooperative relationships can be obtained by engaging stakeholders through engagement strategies that range from communication to partnership and involvement, therefore leading to cooperative relationships that are qualitatively different (Greenwood, 2007; Morsing & Schultz, 2006; Rasche & Esser, 2006). Yet, there is no clear evidence in the literature to support this idea that higher levels of stakeholder engagement have a positive effect on the company's performance.

According to Bridoux, Smith and Grimm (2013) the existing theories in strategy offer very few arguments that can be used to predict the effect and when the impact of the company's actions will have on performance. Additionally, Kujala and Sachs (2019) highlight a gap in the literature regarding the best way to practice management for stakeholders, through engagement, and the impact of this on company performance over time.

This thesis aims to address that gap by analyzing the different engagement strategies and understanding how different nuances of stakeholder-organization relationships affect the quality of the engagement and its impact on firm performance over time. In this sense, this proposal is relevant and touches on the state of the art of the literature.

1.3 Research Aim and Objectives

In this project, the main goal is to analyze the different engagement strategies and understand how different nuances of stakeholder-organization relationships affect the quality of the engagement and its impact on firm performance over time. The research interest here is to understand how the relationship between stakeholders and the organization takes place and the effect it has on engagement, performance, and sustainability in the value creation process.

In view of this, the following specific objectives are derived:

i) to analyze the fundamentals of the stakeholder engagement concept, applying the construct design to find a proper definition and better characterization of the construct;

ii) to identify in the GRI sustainability reports the companies' engagement actions, classifying them according to the engagement level (quality of actions) and the number of stakeholders served and most favored by each action (focus and extent);

iii) to assess whether engagement strategies, with their different levels and attributes, are related with and influence corporate performance over time;

iv) to explore the engagement performance of companies in the stakeholder engagement matrix, given the combination between the different levels of involvement and the impact of the actions carried out for the different groups of stakeholders.

1.4 Theoretical and Practical Justification for Research

Although a large number of articles can be found, there are few recent studies in the stakeholder literature interested in discovering how stakeholders and different engagement strategies are evidenced in sustainability reports (Manetti 2011; Onkila et al., 2014; Grushina 2017, Rawhouser, Cummings, & Marcus 2018). These studies still do not seek to predict which engagement strategies can be implemented, when organizations will choose one engagement strategy over others (Herremans, Nazari, & Mahmoudian 2016), and the possible impact of these strategies on the organization's performance (Conner, 2017; Henisz, Dorobantu, & Nartey 2014).

In addition to the evident evolution of stakeholder theory, with new theoretical models and the discussion of empirical evidence, the business environment has also shown itself to be more attentive in seeking alignment between the demands of society and the interests of stakeholders. As an example, two recent corporate events have given strength to the discussion of stakeholder management. The first was the World Economic Forum in Davos, held in January of 2020, whose main discussion involved the urgent and necessary reform of capitalism, giving space to "stakeholder capitalism" in substitution of shareholder primacy.

Second was the recent publication of the 2019 Business Roundtable statement, which brings together more than 200 CEOs of the largest North American corporations. This discussed the principles of corporate governance and redefining the role of business in society, through its "corporate purposes and objectives." It included paying attention to the various groups of stakeholders, such as customers, workers, communities, and suppliers, together with shareholders, in a proposal to create joint value, in a sustainable and long-term. The discussion has drawn the attention of stakeholder theorists, according to recent publications by Harrison, Phillips, and Freeman (2019) and Freeman, Phillips, and Sisodia (2020).

For Freeman (2017), since the global financial crisis of 2008, business has undergone a conceptual revolution, society has been increasingly interested in more responsible capitalism, and the assumptions of stakeholder theory and management have been applied more and more in connection with organizational practice (Freeman, Phillips, & Sisodia, 2020), further reinforcing the urgent need for studies within this area.

1.5 Dissertation Structure

This dissertation is structured in seven chapters. Chapter 1 presents the introduction of the study, addressing the research problem, gap definition, the research objectives, and the practical and theoretical justifications for the study.

Chapter 2 presents the theoretical foundation of the dissertation. It explores the basic premises and theoretical models of stakeholder theory. The stakeholder engagement approach is deepened, applying the technique of construct design. The concept of engagement is analyzed and redefined. Finally, the topic of corporate performance is presented. Chapter 3 is reserved for the elaboration and justification of the study's hypotheses.

Chapter 4 presents the methodological procedures of the research, describing the variables used in the study, their operationalization for measurement, as well as the techniques of analysis of quantitative content and multivariate analysis of the data. Chapter 5 concerns the results and presents the sample characterization, number of observations, descriptive statistics, the results for the hypotheses, as well as a summary of the results found.

In Chapter 6, the results are discussed in relation to the research problem and objectives. Finally, Chapter 7 presents the final considerations, including the findings, implications, contributions, limitations, and recommendations for future studies.

2. THEORETICAL FOUNDATION

Since Freeman's first work (1984), the main reference related to stakeholder theory, a series of studies have been developed emphasizing the concept, theory, and management of stakeholders. According to Freeman's definition (1984, p.46), "stakeholders are groups or individuals that may affect or are affected by the organization in achieving its objectives." The author points out that the word stakeholder first appeared in an internal memo of the Stanford Research Institute in 1963, in which it was defined as groups that, without their support, the organization would cease to exist. Other broader or more restricted definitions are also used to conceptualize stakeholders (Friedman & Miles, 2006).

Freeman (1984) adds that the concept of stakeholders is developed in four areas: corporate strategic planning, systems theory, corporate social responsibility, and organizational theory. From a strategic perspective, stakeholder management refers to the organization's need to manage relationships with its stakeholders (Freeman, Harrison, Wicks, Parmar, & De Colle, 2010).

Donaldson and Preston (1995) argue that the advancement of stakeholder theory has taken place in three dimensions: descriptive, instrumental, and normative. In the descriptive dimension, stakeholder theory is able to describe the corporation as a set of cooperative and competitive interests that have intrinsic value. In the instrumental dimension, the relationships between stakeholder management and corporate performance are established, considering that good stakeholder management positively affects the performance of the corporation, including financial performance. The normative dimension is the fundamental basis for the theory and assumes that stakeholders have legitimate interests, and their interests have intrinsic value.

2.1 Main Assumptions and Theoretical Models of Stakeholder Theory

Friedman and Miles (2006) propose a classification for works related to the instrumental dimension of stakeholder theory, grouping them as organization-centered, stakeholder-centered, or centered on the relationship between the organization and its stakeholders. Some of the theories classified as organization-centered are those of Freeman (1984), Clarkson (1995), Jones (1995), and Mitchell, Agle, and Wood (1997).

Freeman (1984) deals with stakeholder management at three levels: rational, procedural, and transactional. At the rational level, it is necessary to identify the corporation's stakeholders and what their position is. At the procedural level, it is necessary to understand which organizational processes are involved in relationships with stakeholders, and how these processes are related to the rational level. The transactional level refers to the organization's negotiations and bargaining with stakeholders, and the relationships between those negotiations and the previous two levels.

Clarkson (1995, p.106) defines stakeholders as "individuals or groups who own or claim property, rights, or interests in a corporation." These claims are the result of the relationship established with the stakeholders or the actions taken by the company in relation to them.

According to Clarkson (1995), stakeholders can be classified as primary or secondary. The primary stakeholders are those who without their participation the company could not survive. There is a high degree of interdependence between the corporation and its primary stakeholders. Primary stakeholders are generally considered to be shareholders and investors, employees, customers, suppliers, the government, and communities. Secondary stakeholders are those who influence or affect or are influenced or affected by the corporation, but do not have direct relationships with it. The author classifies the media and interest groups as secondary stakeholders, because although they are not essential for the survival of the organization, they can influence the perception that the primary stakeholders have of the organization.

Jones (1995) develops his instrumental stakeholder management theory based on the view of the organization as a nexus of contracts. To describe the nature of contracts, the author uses three economic theories: agency theory, transaction cost, and team production theory. Based on the theoretical lines adopted, the author emphasizes the idea that managers are self-interested agents and that the costs to prevent or inhibit the opportunistic behavior of these agents are high.

Jones's instrumental stakeholder management theory (1995) focuses on the contract. Companies that establish contracts or relationships with their stakeholders based on trust and mutual cooperation have a competitive advantage over those that do not, because mutual cooperation can reduce transaction costs. Thus, organizations should avoid policies, relationships, or decisions that result in opportunistic behavior of managers towards their stakeholders. This approach has been continuously improved, for example by Crane (2020), when he deepens the discussion about trust and connection with stakeholders.

Mitchell, Agle, and Wood (1997, p.854) propose the "stakeholder salience" typology. Salience refers to the "degree to which managers give priority to competing stakeholder claims." According to the authors, stakeholders can be identified based on three attributes: (1) their power to influence the organization, (2) the legitimacy of the stakeholder relationship with the organization, and (3) the urgency of stakeholder claims in the organization. Stakeholder salience is positively related to the managerial perception of the presence of these attributes (Mitchell, Agle, & Wood, 1997).

The authors developed a classification based on the three attributes. Initially, stakeholders who have only one attribute are called "latent stakeholders;" those who have two attributes are the "expectant stakeholders;" those with the three attributes are the "definitive stakeholders." For Wood, Mitchell, Agle, and Bryan (2018), in a revisit to the theoretical proposal of stakeholder salience twenty years after the initial publication, the need to identify and verify the importance of stakeholders is also reinforced. Despite the factual importance for any corporation, managers' failure to accurately identify who their stakeholders are and whether/how they are important or outstanding has also generated contractual data and claims to organizations.

The theories classified by Friedman and Miles (2006) as instrumental theories centered on the stakeholder include those of Frooman (1999) and Rowley and Moldoveanu (2003). Frooman (1999) develops a model of stakeholder influence strategies that deals with the strategies that stakeholders can use to influence the company's decision making, as well as its behavior. The author uses the theory of resource dependence to analyze the power and interdependence relationships and builds a model with four types of influence strategies that can be adopted by the stakeholders of a corporation.

Rowley and Moldoveanu (2003) develop an action model for stakeholder groups based on theories of social movement and social identity. The authors claim that the interests of stakeholders do not easily translate into action, even if they have power and urgency. From this perspective, individuals are part of different stakeholder groups and are more likely to act when these stakeholder groups have a common interest than when they have diverging interests. Mobilization can also be motivated by a desire to express an identity, with individuals being more likely to act to differentiate the identity of their stakeholder group, than to contribute to a confusion or mix of their identity with that of other groups.

Finally, there are theories centered on the relationship between the organization and its stakeholders, represented here by Rowley's theoretical model (1997, 2017). Rowley's (1997) approach relates to the complexity between the relationships and influences of the various stakeholder groups and the focal organization; that is, it does not only consider the importance of the company's relationships with its stakeholders, but also the relationships between the stakeholders themselves. For the author, corporations are not always the nexus of interactions; instead, internal and external social networks between stakeholders can affect the behaviors of organizations.

The proposition is illustrated by means of dyadic relationships and social network analysis, closely tying in with the theoretical models of interorganizational networks in the context of a network society (Rowley, 1997, 2017). From this perspective, companies not only respond individually to each stakeholder, but also to the influence of these diverse relationships, that is, the simultaneous influence of multiple stakeholders, as highlighted by Stocker, Mascena, Azevedo, and Boaventura (2019) when revisiting the stakeholder networks approach proposed by Rowley.

2.2 Stakeholder-Oriented Management

According to Donaldson and Preston (1995, p.67), "the theory of stakeholders is managerial, in the broad sense of the term, as it suggests attitudes, structures and practices that together constitute the management of stakeholders." According to the authors, stakeholder management requires, as a main attribute, paying simultaneous attention to the legitimate interests of all relevant stakeholders, both in the establishment of organizational structures and policies and in decision making. However, this does not imply that all stakeholders identified must be equally involved in the processes and decisions (Stocker & Mascena, 2019).

The strategic management process based on Freeman's stakeholder approach (1984) is developed in three stages: direction, formulation, and strategic implementation. According to Freeman (1984), in the strategic direction stage it is important to align social and ethical issues with the traditional vision of the company, and changes in the strategic direction must consider the impact on stakeholders, especially primary stakeholders. At this stage, a stakeholder analysis, value analysis, and social analysis are carried out.

The stakeholder analysis seeks to identify who the stakeholders are and what their position or effect is, whether economic, technological, social, political, or managerial. This analysis seeks to understand the cause and effect relationships between the organization and its stakeholders (Elias, 2016). The value analysis relates to the organization's ethical values, whether instrumental or intrinsic. The social analysis seeks to understand the social context of the organization and the possible impacts that business decisions have on its stakeholders (Freeman, 1984).

According to Freeman (1984), the implementation of strategic programs for stakeholders involves allocating resources, obtaining commitment in the organization, and changing the transaction processes with stakeholders. Monitoring involves controlling the implementation of the strategies and also the strategic direction. The author also addresses the definition of scores to measure performance with each stakeholder and with the entire set of stakeholders, also checking the effects of the interaction between these measures.

Freeman, Harrison, and Wicks (2007) developed strategies for creating value for stakeholders that aim to increase the organization's capacity to manage its stakeholders. The seven strategies and their brief descriptions are as follows: (1) stakeholder assessment: based on the corporation's mission, the interests of stakeholders are identified; (2) stakeholder behavior analysis: categorizing the behavior as real or observed, the cooperative potential, and the competitive threat; (3) understanding stakeholders' perspective and feedback; (4) evaluation of strategies for stakeholders: adoption of the generic strategies proposed by Freeman (1984); (5) development of specific strategies for stakeholders; (6) creation of new ways of interacting with stakeholders: implicit or engaging relationships, dialogue, and negotiation; (7) development of integrative strategies for creating value: while the other strategies focus on the relationship with each stakeholder, the latter considers the organization's simultaneous relationship with its multiple stakeholders, considering how it can create value for several stakeholders at the same time.

Along the same lines, the management model for stakeholders of creating and distributing value was proposed by Harrison, Bosse, and Phillips (2010), who noted that stakeholder theory focuses on creating value (Freeman et al., 2010) and the distribution of value must be considered indivisible, therefore management models must address this interconnection.

According to Harrison et al. (2010), the distribution of value has the ability to generate an assertive reciprocity between the organization and stakeholders. In other words, if stakeholders perceive that the company delivers more than the minimum expected to maintain the relationship, their level of satisfaction increases, as might their engagement in the company's objectives. Likewise, if stakeholders perceive that the treatment is unfair or is not consistent with the level of exchange, this can generate negative reciprocity and a failure to collaborate with the organization. For the authors, the most appropriate model of stakeholder management is one in which positive reciprocity is achieved, generating greater value creation and achieving competitive advantages for the organization (Harrison et al., 2010).

The studies of stakeholders have, especially in recent years, predominantly proposed and tested models concerning the creation, distribution, and appropriation of value for stakeholders, as a form of analysis for stakeholder management. The assumption is that good treatment and the management of stakeholder interests leads to cooperation and a process of value creation over time, which results in good business performance. The knowledge regarding value models has been notably advanced since the studies by Harrison et al. (2010), Harrison and Bosse (2013), Harrison and Wichs (2013), Garcia-Castro and Aguilera (2015), Retolaza, San-Jose, and Ruíz-Roqueñi (2016), Tantalo and Priem (2016), Bridoux and Stoelhorst (2016), Schneider and Sachs (2017), and Boaventura, Bosse, Mascena & Sarturi (2020).

2.3 Stakeholder Engagement Concepts and Approach

In the last few years, increased interest and attention has been paid to the meaning of engagement with stakeholders and its reflection in management and organizational performance (Cramer, Jonker & Van Der Heijden, 2004; Zwikael, Elias & Ahn; 2012; Gupta, Crilly & Greckhamer, 2020). This meaning can be interpreted in terms of the nature, quality, and extent of the relationships between companies and stakeholders and may also present different levels within its composition, with different directions for each stakeholder group in different time periods (Morsing & Schultz, 2006; Greenwood, 2007).

The engagement literature derives from two different, though complementary, perspectives on corporate social responsibility and the stakeholder strategy approach; one has focused on developing communication engagement initiatives and the other on developing relationships. These different perspectives have been used in various articles to characterize stakeholder engagement initiatives (Morsing & Schultz, 2006; Rasche & Esser, 2006; Van Huijstee & Glasbergen, 2008; Herremans, Nazari, & Mahmoudian, 2016; Moratis & Brandt, 2017; Lane & Devin, 2018; Maher, 2019).

Although the literature reveals the importance of stakeholder engagement in an organization's strategies and activities, there is a lack of studies that explore this subject and that contribute to the development of stakeholder theory. For this reason, in this topic it aims to analyze the fundamentals of the stakeholder engagement approach, presenting its evolution in the international literature, and proposing a better definition and selection of the necessary characteristics for its correct theoretical delimitation.

Taking into account the different applications and interpretations of the concept, this dissertation will examine the construct design, in an attempt to find a suitable definition of the "stakeholder engagement" construct. The structure of the construct design applied here will follow the guidelines indicated by Podsakoff, MacKenzie, and Podsakoff (2016), namely: 1) identify potential attributes of the concept by collecting a representative set of definitions; 2) organize the potential attributes by theme and identify any necessary and sufficient or shared ones; 3) develop a preliminary definition of the concept; and 4) refine the conceptual definition.

During step 3, the four points mentioned by Suddaby (2010) will be applied for better construct clarity, these being: 1) definitions; 2) scope conditions; 3) relationships between constructs; and 4) coherence. Finally, in step 4, a review of the constructs and concept will be carried out, with the aim of obtaining a re-conceptualization, as suggested by Solinger, Heusinkveld, and Cornelissen (2015).

2.3.1 Construct Design Stage 1: Identify Potential Attributes of the Concept and Collect a Representative Set of Definitions

As indicated by Podsakoff et al. (2016), the initial phase of identifying potential attributes for the representation of the concept to be defined can be performed in different ways. For this, I make use of four research sources: a) *the dictionary*, b) *the literature* c) *practitioner observation* and d) *the field of study*.

a) *The dictionary:* Using the Cambridge Advanced Learners Dictionary & Thesaurus I looked up the two words that form the construct to be analyzed: 1) stakeholder and 2) engagement.

stakeholder, noun [C] (SHARE) (application - a person or group of people who own a share in a business; a person such as an employee, customer, or citizen who is involved with an organization, society, etc. and therefore has responsibilities towards it and an interest in its success.)

engagement, noun (INTEREST) (application - the fact of being involved with something or the process of encouraging people to be interested in the work of an organization).

Although some assumptions have been incorporated and adjusted, Freeman (1984) formulated the best known and most used definition of stakeholder (p. 46): "[...] any group or individual that can affect or is affected by the achievement of the company's purposes." In other words, it can be understood as found in the dictionary. In relation to the term "engagement," we have the interpretation of relationship (status or action) and also of process, which can best be described in the next phases of identifying attributes of the concept.

b) *The literature:* The research topic has been widely studied in recent years by international academia. Evidence of this research can be observed in the quantity of articles found in the Web of Science database that address the issue of stakeholder engagement. A search carried out in this database reveals that in the last 10 years alone, 215 articles were published on the topic – using a search for "stakeholder" and "engagement" as the document title and choosing the areas of business, management, and related. In a search of the Scopus database, over the last 20 years 959 articles have been published whose title includes the words "stakeholder" and "engagement." Table 1 presents a sample of the main articles on the topic published in the last five years, including the prestige of the journal, citation, and reference authors.

Table 1 - Articles in the Web of Science database on the topic of stakeholder engagement

Year	Authors	Title	Journal
2016	Herremans, Irene M.; Nazari, Jamal A.; & Mahmoudian, Fereshteh	Stakeholder Relationships, Engagement, and Sustainability Reporting	Journal of Business Ethics
2017	Grushina, Svetlana V.	Collaboration by Design: Stakeholder Engagement in GRI Sustainability Reporting Guidelines	Organization & Environment
2017	Moratis, Lars & Brandt, Satu	Corporate stakeholder responsiveness? Exploring the state and quality of GRI-based stakeholder engagement disclosures of European firms	Corporate Social Responsibility and Environmental Management
2018	Desai, Vinit M.	Collaborative Stakeholder Engagement: An Integration Between Theories of Organizational Legitimacy And Learning	Academy of Management Journal
2018	Sulkowski, Adam J.; Edwards, Melissa & Freeman, R. Edward	Shake Your Stakeholder: Firms Leading Engagement to Cocreate Sustainable Value	Organization & Environment
2019	Griffin, Jennifer J.; Youm, Yoo Na & Vivari, Bem.	Stakeholder Engagement Strategies After an Exogenous Shock: How Philip Morris and R. J. Reynolds Adapted Differently to the 1998 Master Settlement Agreement	Business & Society
2020	Torelli, Riccardo; Balluchi, Federica & Furlotti, Katia.	The materiality assessment and stakeholder engagement: A content analysis of sustainability reports	Corporate Social Responsibility and Environmental Management
2020	Ruiz, Silvia; Romero, Silvia & Fernandez-Feijoo, Belen.	Stakeholder engagement is evolving: Do investors play a main role?	Business Strategy and the Environment
2020	Gupta, Kamini; Crilly, Donal & Greckhamer, Thomas.	Stakeholder engagement strategies, national institutions, and firm performance: A configurational perspective	Strategic Management Journal

To summarize the attributes and definitions used in the various fields and studies applying the stakeholder engagement construct, five main articles were selected that in the author's view are the most cited in the papers found in the search and are concerned with discussing, advancing, or redefining the concept, antecedents, and consequences of engagement activities. The five papers are presented in Table 2, showing the main excerpts for conceptualization of the construct and the key attributes for future discussion.

Table 2 - Summary of Attributes of Stakeholder Engagement Conceptualizations

Author(s)	Conceptualization of Stakeholder Engagement	Key Attributes
Morsing & Schultz (2006)	• "position it as the communication that organizations put out about their 'ethical and socially responsible initiatives." (p. 323) • "participation, dialogue and involvement to the centre of stakeholder theory, with a clear inspiration (and aspiration) from democratic ideals" (p. 325) • "This dialogue contributes to the identification of potentially critical issues of importance for corporate legitimacy and a company's reputation." (p. 333	CSR communication strategies Types of stakeholder relations: information, response and involvement strategy Dialogue and stakeholder relationship
Friedman & Miles (2006)	• "conceptualize stakeholder engagement as a strategic action that seeks to explore stakeholder relations at different levels in order to understand their needs and involve them in the organization's processes and decisions." (p. 162)	Levels of engagement Dialogue: one-way, two-away, multi-way
Greenwood (2007)	• "Stakeholder engagement is understood as practices the organisation undertakes to involve stakeholders in a positive manner in organisational activities" (p. 315) • "The engagement of stakeholders does not ensure the responsible treatment of stakeholders." (p. 320) • "Stakeholder engagement is a process or processes of consultation communication, dialogue and exchange." (p. 322) • "Given the varied set of organisational stakeholders, engagement practices may exist in many areas of organisational activity including public relations, customer service, supplier relations, management accounting and human resource management… working in different ways and mechanisms… such as a corporate governance mechanism." (p. 318)	Complex relationship between engagement and corporate responsibility Morally neutral practice Stakeholder engagement x Stakeholder Agency Multifaceted relationship Different forms and mechanisms

Bowen, Newenham-Kahindi & Herremans (2010)	• "Community engagement strategy is the subset of a firm's corporate social responsibility (CSR) activities that are directed towards individual citizens and community groups." (p. 297) • "Community engagement can be a significant activity within the firms' broader stakeholder management programs, but with a narrower scope: while community members are often firm stakeholders, not all stakeholders are communities." (p. 298) • "These are often labelled as 'collaboration' or 'partnership', but there are substantive differences in the processes employed, and in the nature of benefits expected from, the two strategies. Only transformational engagement can give rise to joint benefits both to firms and communities rather than merely symmetrical ones." (p.311)	transactional, transitional and transformational engagement strategies Number of partners and Frequency of interaction shared social well-being Partnership and collaboration Joint Benefits to Firm and Community
Sulkowski, Edwards & Freeman (2018)	• "Shaking a stakeholder means to inform and "shake" stakeholders out of complacency—to solicit input and cooperation in altering their behavior, changing societal or market conditions, or shaking up stakeholder relationships to stimulate adoption of sustainable practices." (p. 227) • "Stakeholder shaking can best be understood by contrasting it with other engagement strategies." (p. 224) • "Stakeholder shaking is similarly characterized by identifying what systemic changes are needed based on a conviction that the firm's goals and sustainability goals are coequal, being proactive in advocacy for these changes, and creating and aligning networks to bring into practice innovations that produce measurably positive outcomes for societies and the environment." (p 237)	Stakeholder interactions Proactive engagement and cooperation with stakeholders Cocreate sustainable value

c) *Practitioner observation:* As the management of organizations has evolved over time against a backdrop of greater accountability for its actions in the form of ethical, fair, and sustainable practices required by society and by the competitive framework of the corporate world itself, the relationship with and the interests of stakeholders have also drawn more attention.

As pointed out by Podsakoff et al. (2016), consulting experts, colleagues, and practitioners can help to better understand the attributes related to the construct as well as to better contextualize them in practice. Considering this, in a preliminary way, I collected two citations of CEOs from multinational companies whose content mentions the practices of organization vis-à-vis their vision of sustainability and business purpose.

Statements by prominent executives redefining strategic actions and organizational values have placed more emphasis on the issue, as can be seen in the case of the U.S. company AES Energy Corporation, which states that "By engaging with each of the stakeholder groups, AES can align business practices to drive long-term sustainability and shareholder value," and also in the international division of Coca-Cola Company, which affirms that "Engaging a diverse group of stakeholders over the long-term in constructive and open dialogue makes us a better company."

d) *Field of study*: Another example of the practical application of the concept of stakeholder engagement is found in the guidelines for the disclosure of the GRI (Global Reporting Initiative) sustainability report. Representing approximately 90% of the worldwide publication of sustainability reports, the GRI establishes criteria that guide and specify how some information should be disclosed. Among the guidelines, there is a specific section on relationships and stakeholder engagement. Below I present two important observations. The first is the description of the parameters that the GRI expects in the disclosure of companies, and the second is an extract from the sustainability report of one of the companies analyzed, which annually reports its sustainability actions.

GRI – Energy Sector Disclosures: **"**As providers of an essential service and as users of natural resources, stakeholders expect electric utilities to build trusting relationships with stakeholders in order to operate legitimately and sustainably. Across all economic, environmental, and social themes described in this document, particular attention is called to the engagement of stakeholders. Electric utilities are expected to disclose their approach to effective stakeholder engagement. Specific areas for consideration include stakeholder identification, means of engagement, and level and weighting of stakeholder representation in decision-making processes. At a minimum, stakeholders include customers, neighbors, investors, shareholders, regulatory authorities, NGOs and other interested organizations, workers, and civil society, with particular attention given to vulnerable constituents" (GRI).

Duke Energy International – Sustainability Report – 2019: "We also continue to roll out three sustainability guidelines: Stakeholder Mapping and Analysis, Stakeholder Engagement and Sustainability Risk and Impact Assessment. Each of our business units identified and prioritized stakeholders and assessed sustainability risk for their respective countries. Looking ahead, they will develop stakeholder engagement strategies to focus on the stakeholders and issues that matter most in their countries."

2.3.2 Construct Design Stage 2: Organize the Potential Attributes by Theme and Identify any Necessary and Sufficient Ones

In this step, the different key attributes presented in the previous section are discussed, seeking to differentiate them by themes and creating a consensus on what would be sufficient and necessary attributes for a better definition of the stakeholder engagement construct.

Bowen et al. (2010, p. 297) describe engagement as "a subset of a firm's corporate social responsibility (CSR) activities;" whereas Morsing and Schultz (2006, p. 323) see it as the communication that organizations put out regarding their "ethical and socially responsible initiatives." From this CSR communication perspective, stakeholder dialogue can be achieved in different ways (Golob & Podnar 2014). Morsing and Schultz (2006) built a model, based on the work of Grunig and Hunt (1984), which suggests that organizations develop three distinct communication strategies to engage stakeholders (inform, respond, and support). In the same direction, Bowen et al. (2010) reviewed similar strategies to engage communities and other stakeholders, referring to communication strategies as transactional, transitional, and transformational. For these authors, stakeholder engagement refers to the way companies communicate and have dialogue with their stakeholders.

From another perspective, Friedman and Miles (2006) and Greenwood (2007) propose that stakeholder engagement is best understood as a process. Greenwood (2007, p. 318) defined stakeholder engagement as "practices that the organization undertakes to involve stakeholders." That is, stakeholder engagement is understood as practices that the organization commits to in order to positively engage stakeholders in activities (Greenwood, 2007). According to Greenwood (2007), stakeholder engagement can be analyzed from the perspective of the nature and level of engagement. In this light, the author states that the organization responds to the needs of its stakeholders in order to further its own objectives and uses different actions and engagement practices to communicate and engage stakeholders in the business.

Complementarily, Friedman and Miles (2006) conceptualize “stakeholder engagement” as a strategic action that seeks to explore stakeholder relationships at different levels in order to understand their needs and involve them in the organization’s processes and decisions. The authors also present a scale model of engagement, proposing three levels of engagement in which it can be inferred that the higher the level of engagement, the greater the participation in decision making and in the actions of the organization.

In proposing twelve levels of engagement, Friedman and Miles (2006) point out that the proposal is not that relationships with all stakeholders should rise to the twelfth level, or to any other “ideal” level. Different stakeholder groups or the same group at different times can be managed at different levels.

What is important, as already argued by authors such as Noland and Phillips (2010), Cramer et al., (2004), and Greenwood (2007), is to differentiate the appropriate nature of firms’ engagement with their stakeholders, and the quality of the relationships, as these nuances in engagement practices influence how the stakeholders will engage and if they will be willing to contribute to the organization’s goals. In addition to this, Sulkowski, Edwards, and Freeman (2018) raise the concept of “shaking stakeholders,” proposing a different form of interaction and relationships with stakeholders, through proactive engagement and cooperation with stakeholders, as a form of co-creation of sustainable value, going beyond traditional guidelines for engagement and communication with stakeholder groups.

Table 3 is an attempt to differentiate the concept of stakeholder engagement from the other commonly referenced constructs, analyzing the presence of the attributes identified in the previous stage of concept evaluation. The organization of the attributes as well as discussion of the different concepts will help in the new definition of the concept to be presented in the next topic.

Table 3 - Identifying necessary and sufficient attributes of the concept of stakeholder engagement

Attributes	Stakeholder Engagement	Communication Strategy	Corporate Social Responsibility	Stakeholder Relationship	Conclusions
A1: communication about ethical and socially responsible initiatives	Present	Present	Present	Absent	Necessary but not sufficient
A2: different levels - dialogue one-way, two-away and multi-away	Present	Present	Absent	Absent	Necessary but not sufficient
A3: multifaceted relationship	Present	Absent	Absent	Present	Necessary but not sufficient
A4: joint benefits to firm and community	Present	Absent	Present	Absent	Necessary but not sufficient
A5: cocreate sustainable value	Present	Absent	Present	Absent	Necessary but not sufficient
A1 and A2 and A3 and A4 and A5	Present	Absent	Absent	Absent	Necessary and jointly sufficient

2.3.3 Construct Design Stage 3: Develop a Preliminary Definition of the Concept

Considering the model of conceptualization in management research according to Solinger, Heusinkveld, and Cornelissen (2015), it is possible to identify two different methodological backgrounds for each group of constructs presented in “stakeholder engagement.” The definition presented by Bowen et al. (2010) and Morsing and Schultz (2006), whose focus is on engagement as communication, leads to a belief in the “rationalist” position, specific to communication on corporate social responsibility. Here the definition is derived according to a particular theoretical perspective, which follows a logic on how the phenomenon emerges from the literature and is classified in the field.

On the other hand, Greenwood (2007), Friedman and Miles (2006), and Sulkowski, Edwards, and Freeman (2018) provide their definitions using a procedural approach, where “stakeholder engagement” is seen as a process of engaging and developing different actions and strategies to improve the relationship with stakeholders. In this case, it is believed that the background to the concept lies in the “operational tradition,” where the emphasis is on empirical importance (empiricism) and operationalization, besides the theoretical emphasis on the construct.

Due to the need for a better definition of the “stakeholder engagement” construct, based on communication and an organizational process, a preliminary definition is suggested:

“Stakeholder engagement is the set of actions that the organization develops with its different stakeholder groups, in order to establish dialogue, improve the relationship, and positively affect organizational activities and their value creation.”

With this preliminary concept, I consider the nature of the phenomenon (relationship between the company and its stakeholders) and the entity, clarifying that the process involved takes place within dyadic or multiple relationships, with the purpose of improving communication and stakeholder involvement in the company’s activities and decisions, thus representing the intension and extension of the concepts, as proposed by Podsakoff et al. (2016) and Sudabby (2010).

2.3.4 Stage 4: Refining the Conceptual Definition of the Concept

In this step, I seek to advance the discussion of the concept application and, through the re-definition, ensure that the final version of the conceptual definition is clear, concise, understandable by a broad audience, and not subject to multiple interpretations (Podsakoff et al. 2016). Considering the two-dimensional map relating to the dualities of construct design from Solinger, Heusinkveld, and Cornelissen (2015) and the different methodological background of the concepts presented above, the construct will be reconceptualized by moving to the right – towards particularization. According to the authors, a construct definition is “generally not robust and sustainable if it remains either universal or either particular; nor is it sustainable if it remains either formal or socially constructed” (2015, p. 7).

The attempt to reorient the concept of “stakeholder engagement” presented here comes from the strategic and procedural perspective of the construct, and seeks to avoid the concept simply being applied as a communication tool, transforming it into an organizational mechanism, specific to value creation, through the attributes of communication, interaction, and relationships. Considering the potential ambiguity and lack of clarity in the constructs presented, an attempt at re-conceptualization will be made. Considering the "redefinitions towards particularization," the concept redefinition is presented as follows:

"Stakeholder engagement can be seen as the firm's ability to establish collaborative relationships and dialogue with a wide variety of stakeholders."

The redefinition of the concept seeks to "refocus" the construct in favor of an interpretation based on a single theoretical perspective. This line of thinking argues that the way relationships are built and maintained, whether through justice, reciprocity, or power, can better explain managers' decisions about stakeholder interests. Such thinking assumes that this type of relationship obtains greater engagement and consequent value creation for the company by stakeholders (Bosse et al., 2009; Harrison and Bosse, 2013; Garcia-Castro and Aguilera, 2015; Tantalo and Priem, 2016; Sulkowski, Edwards, & Freeman, 2018). We know little about what takes place in the relationship with stakeholders, which is essential to understand how value is created for various stakeholders (Freeman et al., 2017). Stakeholder engagement can be an interesting mechanism for analyzing this process.

With this complementary concept, we take into consideration the concept of property, specifying the nature of the phenomenon (relationship between a company and its stakeholders), and entity, clarifying that the process involved in this relationship takes place within dyadic or multiple relationships, to improve communication and stakeholder involvement in the company's activities and decisions, thus representing the intension and extension of the concepts, as proposed by Podsakoff et al. (2016) and Sudabby (2010).

2.4 Corporate Performance

The process of evaluating the performance of organizations is one of the main topics studied in business management. The performance of organizations was initially only measured by economic-financial aspects, but since the end of the 20th century that company evaluation model has been criticized (Xie et al., 2019). The discrediting of models based on financial aspects has driven the development of studies that also evaluate non-financial aspects of companies. This discussion has received more emphasis in recent years given the acceleration of corporate social responsibility practices and the importance of the sustainability dimension in organizations (Coff, 1999; Carneiro-da-Cunha, Hourneaux Jr & Correa, 2016).

According to Orlitzky, Schimidt, and Rynes (2003), in the literature on corporate financial performance (CFP), there are different measures of financial performance. Market measures gauge CFP through the share price or appreciation of that price, reflecting investor satisfaction. Alternatively, other indicators used to measure this performance, such as return on assets (ROA), return on equity (ROE), or earnings per share (EPS), capture internal financial efficiency in some way (Boaventura, Silva, & Bandeira-De-Melo, 2012).

It is observed that in the transition from the 20th to the 21st century, CFP and corporate social performance (CSP) started to be analyzed in different ways. Initially, the performance evaluation models only incorporated indicators relating to CFP, but CSP indicators were later gradually incorporated, even as a strategic justification for corporate social responsibility (Vishwanathan et al., 2020).

It is also important to differentiate the concepts of corporate social performance (CSP) and corporate social responsibility (CSR). According to Matten and Moon (2008), CSR is defined as organizational practices and policies that reflect responsibility in business and provide social benefits. On the other hand, CSP refers to the results of these policies and practices of organizations (Clarkson, 1995). In short, CSR deals with activities and CSP deals with results (Salazar et al., 2012).

It is important to highlight that there is a big difference in the way CFP and CSP are measured and that in the literature that addresses social performance there is no one definition of how to evaluate how each stakeholder's demands are met (Russo & Fouts, 1997). For Carroll (1979, p. 504), CSP "requires that 1) social responsibility can be assessed, 2) social issues are identified, and 3) a philosophical answer is chosen." It is observed that the literature on CSP refers to CSR, as an input, and to the assessment of stakeholders, as an output.

The combination of socio-environmental performance and financial performance is the perception, by a company, that its investments in sustainable practices are viable and generate return. In addition, with the growing demand for transparency, companies seek to show stakeholders the benefits obtained. Nevertheless, the academic literature has not yet managed to consolidate the understanding of whether this relationship is positive or negative. In this sense, authors such as Araújo, Cohen, and Silva (2014) and Pereira, Stocker, Mascena, and Boaventura (2020) emphasize that although the search for positivity in this relationship is an arduous task, and possibly inconclusive, it should not be overlooked.

In the midst of this debate, three recent meta-analyses have sought to understand the relationship between socio-environmental performance and financial performance. In the first, Endrikat, Guenther, and Hoppe (2014) investigated 149 studies and inferred that the causal relationship is positive, partially bidirectional, and more vigorous when the company's sustainable strategy is proactive rather than reactive. In the second meta-analysis, Friede, Busch, and Bassen (2015) claim that, unlike in previous studies, which were limited to analyzing part of the literature on the subject, they were able to fully examine all the studies carried out since 1970 that addressed the relationship between socio-environmental performance and financial performance. Their research combined the findings of 2200 studies aggregated from the analysis of 60 papers. The authors maintain that there is a business justification for socio-environmental investments, since 90% of the studies analyzed indicated a non-negative relationship between financial performance and environmental performance, while the majority found a positive relationship between the two.

In third meta-analysis Vishwanathan et al., (2020) argue that the concept of CSR has more strategic value for the company, than an expectation of a positive or causal relationship between CSP and CFP. The authors document through the meta-analysis four empirical mechanisms that explain how CSR positively affects the CFP: 1) improving the company's reputation, 2) increasing stakeholder reciprocity, 3) reducing the company's risk and 4) strengthening the capacity for innovation. In the end, the authors reinforce that it is imperative that new researches are opposed to the fragmentation of the field, addressing increasingly refined research questions.

It should also be noted that, according to Pereira et al., (2020), regardless of the statistical proof of their influence on financial performance and the causality analysis between the different performance variables, increasing investments in stakeholders' social and environmental demands has an important relationship with the strategic positioning in the market and reputation, as well as improving competitive advantage.

Another dimension of the assessment of organizations that is increasingly discussed and has recognized importance is the corporate environmental performance (Lozano & Huisingh, 2011). For Fiandrino, Devalle, and Cantino (2019), CEP can be expressed as the result of the dissemination of information on different aspects of environmental indicators, such as biodiversity, climate change, water resources, effluents, waste, and energy expenditure. Along with social performance, environmental performance has become more evident due to the greater dissemination of corporate social responsibility reports (CSR). The challenge of assessing this environmental dimension also reflects the lack of uniformity of appropriate metrics and indicators for such assessments (Tsallis et al., 2020).

The assessment of environmental performance indicators is useful to help managers to better identify potential risks and map opportunities for developing their actions, as well as to structure disclosure and communication with groups of stakeholders (De Beer & Friend, 2006).

Driven by the regulatory regime, institutional pressures, or a proactive stance (Alvarez, 2019), companies have made improvements and progress in their environmental profiles and meeting the demands of stakeholders on this issue has been key to the success of organizations (Jabbour et al., 2020). However, since the studies by Russo and Fouts (1997), there has been a lack of research that analyzes company corporate environmental performance and profitability, as well as its relationship with better stakeholder management (Toshi et al., 2019; Torelli, Balluchi, & Lazzini, 2020).

For this study, the constructs of financial, social, and environmental performance will be considered for a multidimensional evaluation of organizations. Conceptually, we consider CFP as economic-financial performance, CSP as the interaction between the demands of social responsibility and the answers – social and political – given by stakeholders, and CEP as the results of disseminating information about different aspects of corporate environmental performance, such as biodiversity, climate change, water resources, wastewater, and waste materials (Torelli, Balluchi, & Lazzini, 2020). The operationalization of each of the variables will be presented in the methods section.

3. DEVELOPMENT OF HYPOTHESES

This section presents the arguments that support the formulation of the hypotheses of this dissertation. The main argument is that different stakeholder engagement strategies influence organizational performance over time.

In the discussion on performance measurement, Barnett and Salomon (2012) theorized that the variation in financial returns due to an organization's social performance is attributable to the variation in the company's capabilities in identifying, acting, and taking advantage of opportunities to improve its stakeholder relationships. This is discussed in the field of CSR and presented here as management for stakeholders, through actions and engagement practices.

Within this context, what remains unknown and what this research proposes to answer are the following: what is the influence of engagement actions on companies' performance? Are there different impacts on company performance, in the short or long term, due to the nature and improvement of the relationships with the stakeholder groups?

3.1 Stakeholder Engagement Level

Companies can develop different engagement actions and strategies to build a relationship and interact with groups of stakeholders. For Stocker et al., (2020), one possible way to analyze this in the practical world is to classify actions into levels of engagement and extent in terms of the number of stakeholders served in each level of engagement actions. The model proposed by Stocker et al., (2020) is based on the levels of relationship and engagement with stakeholders already discussed by Grunig and Hunt (1984) specifically for public relations and by Morsing and Schultz (2006) for communication actions, and it follows Greenwood's (2007) theoretical assumptions about engagement practices.

According to the stakeholder engagement strategies model, the quality of engagement is determined by differentiating it into three types of relationships and levels of engagement with stakeholders and identifying how companies allocate these actions to each group of stakeholders (Stocker et al., 2020). The three levels proposed are: Level 1 – information strategy for stakeholders, with actions designed to identify and inform stakeholders; Level 2 – stakeholder response strategy, with actions to consult stakeholders on their interests and support their demands; and Level 3 – stakeholder involvement strategy, with actions aimed at establishing partnerships and collaboration to involve the parties in projects (Stocker et al., 2020).

At the first level, the strategy for informing stakeholders is based on a unidirectional dialogue model, where the intention is to "listen" to the demands and themes of stakeholder interests (Morsing & Schultz, 2006). At this level of engagement the relationship is transactional without building bonds (Bown et al., 2010), and it is categorized as a low level of engagement and commitment between the parties.

At the second level, the stakeholder response strategy is based on a "two-way" dialogue model, where the intention behind the actions is to consult the stakeholders and give voice to their demands and interests (Morsing & Schultz, 2006). The relationship is transitional (Bowen et al., 2020), where an improvement in the commitment between the parties is perceived, and therefore it is classified as a medium level of engagement.

At the higher level, for Morsing and Schultz (2006), as well as for Greenwood (2007), companies can develop actions in order to involve stakeholders and seek to develop a relationship, which is called "engagement by involvement" by Stocker et al. (2020). At this level, communication is bi-directional and symmetrical; that is, there are multiple dialogues between the parties, and the interests of stakeholders are taken into account at the same time as the organization's objectives are outlined. They are invited to participate in the decision and planning processes of the organization. Thus, this is a high level of engagement.

The classification into levels of engagement proposed by Stocker et al. (2020) therefore takes into account the direction and depth of communication with stakeholders as well as the intention of the engagement action. With an "informational intention" the relationships are transactional and the result is a low level of engagement. Actions with a consultative intention, on the other hand, are built by two-way dialogues in the context of a transitional relationship and therefore a medium level of engagement. Finally, at a high level of engagement, the engagement actions are intended to involve the stakeholder.

As the stakeholder response to company actions varies according to the capacity of the engagement process, different levels of engagement will affect returns in different ways. For Barnett and Salomon (2012), the relationships that are built between companies and their stakeholders can bring about a reduction of transaction costs and facilitate the capacity to create joint value, and therefore management for stakeholders is seen as reliable and valuable to the company. What stands out as relevant, as already argued by authors such as Noland and Phillips (2010), Cramer et al., 2004), Greenwood (2007), and Stocker et al. (2020), is that it is important to differentiate the appropriate nature of engagement with the stakeholders and the quality of these relationships, since these nuances in engagement practices influence the way the stakeholders will be involved and willing to contribute to the organization's objectives and performance.

Thus, it is expected that:

H1: The level of stakeholder engagement has a positive influence on the organization's performance over time.

The stakeholder management literature maintains that managers must overcome short-term vision trade-offs and maximize shareholder return by building sustainable relationships and creating long-term value (Bosse et al., 2009; Griffin, Youm & Vivari, 2019). However, the long-term view assumes the existence of potential friction in the short term, a topic widely discussed but without fully generalizable results (Bridoux, Smith & Grimm, 2013; Henisz, Dorobantu, & Nartey, 2014; Garcia-Castro & Aguilera 2015)

For Garcia-Castro and Aguilera (2015), management and actions aimed at stakeholders can have a different impact in the short or long term on the creation of value for shareholders. When examining more closely the relationship between short and long-term orientations and the performance of organizations, Flammer and Bansal (2017) highlighted that companies, represented by their managers, suffer from managerial myopia caused by several factors, such as market pressure and competition, and their actions focus on the short term, since executives and their goals are also estimated in the short term. Thus, management prefers expenditures and the allocation of resources for the adoption and execution of practices whose results are achieved in the short term.

In contrast, there is the argument centered on long-term gains, arising from organizational actions at a higher level where the allocation of resources occurs differently (Bridoux, Smith & Grimm, 2013). For most scholars in this field, a strategic orientation aimed at the long-term horizon is important for establishing and strengthening relationships with stakeholders, and these frequent and lasting interactions bring about not only financial results, but also potential social and environmental gains that go beyond intangible gains such as reputation and legitimacy, which are resources earned over the long term and through joint value creation relationships (Russo & Fouts, 1997; Wang & Bansal, 2012; Barney & Harrison, 2020). It is believed that engagement actions developed at a higher level of involvement will also contribute to the creation of value and performance in the long run.

There is no clarification in the literature on how low- and high-level actions impact company performance in the short and long term, so hypothesis 2 aims to estimate whether low-level actions have an effect in the short term, while high-level engagement actions have a greater effect in the long run, as shown in Figure 1.

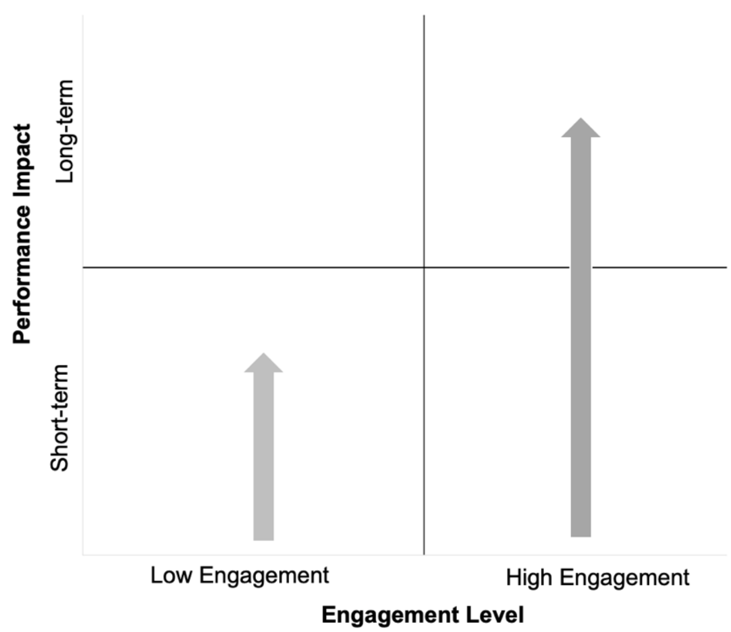
Thus, it is expected that:

H2: The higher the engagement level, the longer its effect on performance over time.

H2a: A low level of stakeholder engagement has a positive relationship with the organization's short-term performance.

H2b: A high level of stakeholder engagement has a positive relationship with the organization's long-term performance.

Figure 1 Engagement level and performance impact estimation model



In studies on the engagement and communication process with different groups of stakeholders, Morsing and Schultz (2006), Greenwood (2007), Herremans et al. (2016), Grushina (2017), and Lane and Devin (2018) argue that for each stakeholder group, because there is a different engagement action, as Friedman and Miles (2006) stated when indicating the twelve levels of engagement, not all stakeholders are expected to reach the maximum level of engagement, and this may not be everyone's demand. In this sense, Stocker et al. (2020) discusses the possible breadth of engagement actions, considering that for each level of engagement, there will be more or less served stakeholders, and the engagement may have a broader or more restricted profile, as seen in other value creation models for stakeholders, for example Vidal, Barman and Buren (2015).

For this reason, the extent of the impact of the engagement will also be explored, in addition to the levels of engagement, which means identifying the number of stakeholders involved in each engagement action. Companies can adopt an engagement aimed at a large number of stakeholders, but with lower-level actions, whose objective is only to inform them or create a direct, but restricted dialogue; or it can reduce the number of stakeholders served and develop more specific engagement actions with a focus on creating long-term value, that is, relationship actions with greater intensity, commitment, and involvement with stakeholders (Stocker et al., 2020).

Given the theoretical arguments regarding the different levels of engagement and relationships with stakeholders and the extent they cover the total number of stakeholders served, it is expected that:

H3: The combination of the level and extent of stakeholder engagement is positively associated with the improvement in the organization's performance over time.

Variations related to the adoption of CSR engagement levels and practices can relate to both internal aspects and company size (Naser, Al-Hussaini, Al-Kwari, & Nuseibeh, 2006; Pérez, López, & Salmones, 2017), the sector, business specificity, the organizational structure (Haniffa & Cooke, 2005; Schaltegger & Burritt, 2010; Johnson, Redlbacher, & Schaltegger, 2018; Xie et al., 2019), as well as the experience and maturity of the business in publicizing engagement actions, generally linked to corporate sustainability reports (Baumgartner & Ebner, 2010; Talbot & Boiral, 2018; Barakat, Sarturi, & Mascena, 2019; Pucheta-Martínez, Bel-Oms, & Rodrigues, 2020).

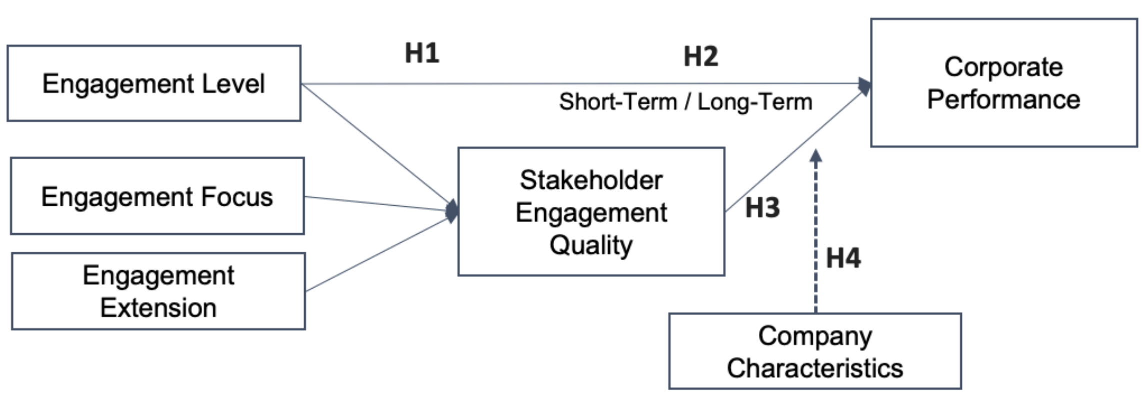
The set of characteristics of the organization therefore involves a variety of contextual factors that may be strongly linked to the institutional environment in which the company is located (Aguinis, 2011; Bacinello, Tontini, & Alberton, 2019; Gupta, Crilly, & Greckhamer, 2020), as well as serving as an explanation to understand the relationship between the adoption of certain engagement strategies and organizational performance in its different dimensions.

In light of this, and considering the arguments regarding the possible influence of the type of organization, size, specificities of the sector, and experience and maturity in the dissemination of sustainability reports, it is expected that:

H4: The characteristics of the organization have an influence on the relationship between stakeholder engagement and the organization's performance.

To summarize, Figure 2 shows the framework adopted in this study as a consequence of the aforementioned hypotheses.

Figure 2 - Research Model



4. METHODS

This study was carried out in organizations in the energy sector that disclose their sustainability reports through the international GRI platform. To analyze the levels and quality of stakeholder engagement and the possible relationship with corporate performance, a longitudinal analysis is performed, covering 2014 to 2019.

This study has two distinct methodological designs: 1) qualitative stage: data collection from sustainability reports and application of the content analysis method to the engagement actions over the 6 years. The content analysis was carried out considering the different levels/quality of the actions and extent of stakeholder coverage; 2) quantitative stage: to assess the impact of engagement actions on the social (CSP), environmental (CEP), and financial (CFP) performance of companies over time, variables were collected from different data sources and, after consolidating the database, statistical tests and multivariate analyses were performed. The multivariate analysis is mainly carried out through panel data regression and mediation analysis. All methodological steps and the respective reasons for choosing them will be presented in the topics below.

4.1 Data Source - GRI Sustainability Reports

The GRI – Global Reporting Initiative is an independent international organization whose objective is to cooperate with companies, governments, and other organizations to understand and communicate impacts on issues such as climate change, human rights, and stakeholder engagement. The GRI framework for sustainability reporting helps companies to identify, collect, and report this information in a clear and comparable way.

Sustainability reports have been used as an important tool by organizations and their stakeholders in regulating the intersection between the organization and the environment (Grushina, 2017). Companies create different relationships with their stakeholders, and they use, among other sources, the disclosure of sustainability reports to assess the likelihood of continuing this relationship. An example of this is the shareholder stakeholder that seeks enough environmental and social information to know if the company will generate economic resources even at critical moments (Barringer & Harrison, 2000).

GRI is characterized as being an independent international organization, which seeks to show the impact of companies on sustainability problems. Thus, since 2000, the GRI has published guidelines for its reports. The first set of guidelines was called "G1" and was published in 2000. Over the years, the guidelines have been updated. "G2" was published in 2002, "G3" in 2006, "G3.1" in 2011, and "G4," the most recent set, was published in 2013 (Chersan, Cristina, & George, 2018). The guidelines provide guidance to organizations on the format, content, and principles of the reports, so that these documents are improved in each publication (GRI, 2019).

First launched in 2000, the GRI sustainability reporting framework is now widely used by multinational organizations, governments, small- and medium-sized enterprises (SMEs), NGOs, and industry groups in more than 90 countries. The sustainability report has become an important tool used by organizations to communicate their social, environmental, and governance performance to their stakeholders. The GRI guidelines have become "the global standard" used by 63% of the 100 largest companies (N100) in 2017. Of the 250 largest corporations in the world, 93% publish sustainability reports and 82% use the GRI standards to do so (GRI, 2019).

GRI aims to standardize sustainability reports worldwide, developing a framework that allows companies to assess performance in relation to normative laws and regulations, as well as voluntary initiatives. Through the standardization of these practices, GRI has endeavored to make it possible for organizational performance to be measured and compared over time, as well as between organizations within industry sectors (Grushina, 2017).

In this sense, the Global Reporting Initiative (GRI) defines sustainability reports as "a tool that allows organizations to visualize their sustainable behavior and analyze risks and opportunities, while increasing their transparency before stakeholders, as they are a crucial platform for communicating sustainable performance and its impacts – positive and negative" (GRI, 2019). Consequently, the publication can help companies to measure, understand, and report their economic, environmental, social, and corporate governance situation and to define goals to undertake more efficient changes.

In this work, we analyze the content of the reports, generating inferences about how companies express themselves and communicate with different groups of stakeholders regarding their activities and corporate social responsibility practices. The specific section of GRI "Identification and Engagement of Stakeholders" was used, considering the engagement actions communicated by each company. This is an obligatory section for the preparation and disclosure of reports and concentrates on the following questions: G4-24 – List of identified interested parties, G4-25 – Basis for the identification of interested parties, G4-26 – Approach to stakeholder engagement, and G4-27 – Main topics and concerns of the interested parties.

This method of analyzing annual sustainability reports has been used in different studies whose intention has been to systematically quantify and classify the amount of sustainability information (Hourneaux Junior, Galleli, Gallardo-Vázquez & Sánchez-Hernández, 2017) and stakeholder engagement practices in the reports (Moratis & Brandt, 2017; Grushina, 2017; Stocker et al., 2020). Below, Table 4 presents the theoretical and methodological mooring of the use of GRI for this research.

Table 4 - Theoretical validation for the methodological constructs / dataset

Dataset	Justification	Operationalization	Author(s)
GRI – Global Reporting Initiative – Sustainability Report	The GRI has aimed to standardize sustainability reporting world- wide by developing a framework that allows companies to benchmark performance with respect to normative laws and regulations as well as voluntary initiatives Sustainability reporting has become an important tool used by organizations to communicate their ESG performance to their stakeholders, and the Global Reporting Initiative (GRI) Guidelines have become "the global standard" used by 82% of companies completing stand-alone CSR reports around the world. GRI Guidelines had become the most widely used sustainability reporting tool.	GRI Section - "Identification and Engagement of Stakeholders" considering the engagement actions communicated by each company. This is an obligatory section for the preparation and disclosure of reports and concentrates on the following questions: G4-24 – List of identified interested parties, G4-25 – Basis for the identification of interested parties, G4-26 – Approach to stakeholder engagement, and G4-27 – Main topics and concerns of the interested parties. *GRI Database® - Reports available in PDF for 2014, 2015, 2016, 2017, 2018 and 2019 (base year for example - 2013/2014 – 2018/2019).*	Herremans, Nazari & Mahmoudian (2016) Grushina (2017) Hourneaux Junior et al., (2017) Moratis & Brandt (2017) Torelli, Balluchi & Furlotti (2020) Stocker, Tontiti & Sarturi (2020) Stocker et al., (2020)

4.2 Sample and Data Collection - Energy Sector

We selected the energy sector, one of the three most represented sectors in terms of number of reports, and one that involves a considerable level of social and environmental risks. The activity sector determines the level of commitment to and development of CSR practices as well as the disclosure and communication with stakeholders. Depending on the risk that each sector represents for society, stakeholders will exhibit different behaviors (Amor-Esteban, Galindo-Villardón, & García-Sanchez, 2019). A good example is oil and energy companies, which stakeholders perceive as high risk in environmental matters, as well as in the health conditions of their employees; these stakeholders tend to pressure the companies to adopt CSR policies or improve them (Garcia, Mendes-Da-Silva & Orsato, 2017).

The relevance of engagement disclosure information and CSR for the energy sector is highlighted in the guidelines of the GRI itself: “As providers of an essential service and as users of natural resources, stakeholders expect electric utilities to build trusting relationships with stakeholders in order to operate legitimately and sustainably. The Electric utilities sector is expected to disclose its approach to effective stakeholder engagement in its CSR practices” (GRI, 2017).

In the GRI database, the energy sector (energy industry plus oil and gas subsectors) and the energy utilities sector (electric utilities subsector) together represent the largest number of companies with sustainability reports, with a total of 3,948 reports from 420 organizations worldwide. We considered a six-year timeframe, from 2014 to 2019, since the analysis is only possible in reports disclosed from 2013/2014, when companies started to adopt the GRI G4 guidelines.

Within this universe, as shown in Figure 3, 376 companies publish reports according to the GRI G4 standards, totaling 2,070 reports. Only reports published in English, Portuguese, and Spanish were selected for analysis, totaling 1,248 reports from 208 different organizations. This sample number therefore represents 50% of all companies in the energy, oil and gas, and electric utilities sector in the world, and 32% of the total publications in these segments. That is, this research covered 1/3 of worldwide sustainability publications and 60% of everything published on the GRI platform following the G4 standards.

Figure 3- Sample representation of the total reports and organizations analyzed

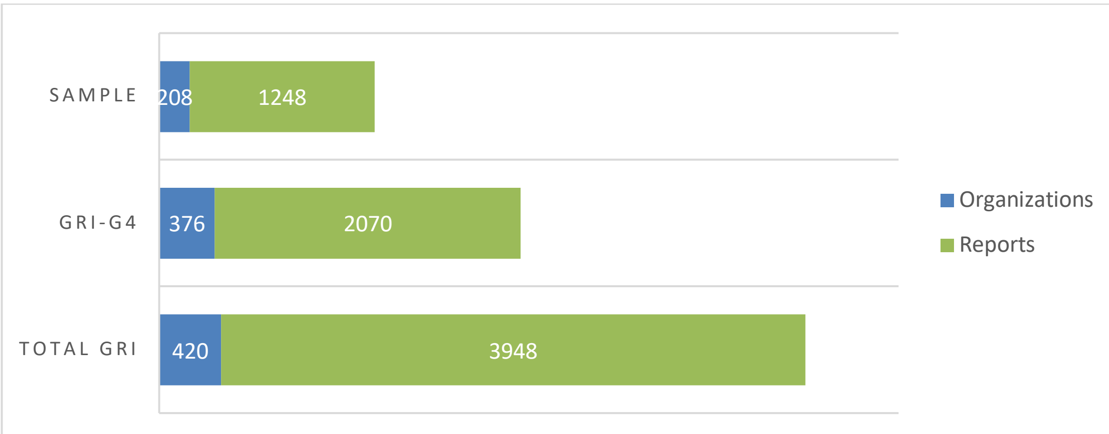


Table 5 also illustrates the theoretical and methodological link to reinforce the decision to choose the energy sector, as well as indicating the authors who developed their research with companies in the energy sector, using stakeholder analysis and ESG indicators within this context.

Table 5 - Theoretical validation for the methodological constructs/dataset

Dataset	Justification	Operationalization	Author(s)
Energy Sector	GRI – Energy Sector Disclosures: “As providers of an essential service and as users of natural resources, stakeholders expect electric utilities to build trusting relationships with stakeholders in order to operate legitimately and sustainably... Electric utilities are expected to disclose their approach to effective stakeholder engagement…” (GRI)	GRI reports > Engagement Section G.4 Energy, Oil & Gas and Utilities Sector/subsector. 6 Years: 2014-2019 Reports available in PDF for 2014, 2015, 2016, 2017, 2018 and 2019 (base year for example - 2013/2014 – 2018/2019). Sample: English, Spanish and Portuguese reports Total: 208 organizations and 1248 reports	Amor-Esteban, Galindo-Villardón & García-Sanchez (2019) Talbot & Boiral (2018) Boiral & Heras-Saizarbitoria (2020)

4.3 Measurement of Engagement Variables

The data collection was carried out through quantitative content analysis of GRI sustainability reports. This study applies the classification of stakeholder engagement strategies developed by Stocker et al. (2020). In this classification model, engagement is differentiated by three levels of quality: Level 1 – stakeholder information strategy, which includes actions aimed at identifying and informing stakeholders; Level 2 – stakeholder response strategy, which involves consulting the stakeholders on their interests and supporting their demands; and Level 3 – stakeholder involvement strategy, which is aimed at establishing partnerships and collaborations with stakeholders in projects. Table 6 shows the conceptual and operational attributes of the engagement constructs used in the model.

Table 6 - Summary of constructs of engagement and relationships with stakeholders

Construct	Conceptual Attributes	Operationalization and words for content analysis	Author(s)
Stakeholder Informing Strategy – Level 1	• One-way dialogue • Transactional relationship • Informative intent • Lower level of engagement	Collected from the GRI: Annual Report, Corporate Reports, Briefings, Brochures, Magazines, Website, Intranet, Social Media, Newsletters, Guide/Manual	Morsing & Schultz (2006) Friedman & Miles (2006) Bowen et al. (2010) Stocker et al., (2020)
Stakeholder Responding Strategy - Level 2	• Two-away dialogue • Transitional relationship • Consultative intent • Middle level of engagement	Collected from the GRI: Back Channel Dialogue, Opinion Polls, Forums, Surveys, Market Surveys/Research, Meetings, Sessions, Interviews, Contact Center, Phone, Customer Service, Interactions, Complaints & Suggestions.	Morsing & Schultz (2006) Bowen et al. (2010) Stocker et al., (2020)
Stakeholder Involving Strategy – Level 3	• Multi-away dialogue • Relationalrelationship • Decisional intent • High level of engagement	Collected from the GRI: Initiatives, Actions, Cooperation, Working Groups, Commissions, Committees, Agreements, Associations, Board representations, Elections.	Morsing & Schultz (2006) Friedman & Miles (2006) Bowen et al. (2010) Stocker et al., (2020)

Engagement Focus	• Stakeholder groups with more or less engagement actions.	The number of stakeholders cited was used as a method to analyze the engagement focus.	Stocker et al., (2020)
Engagement Extension	• Frequency in interactions. • Demonstration of stakeholders' bargaining power.	For the engagement extension, the frequency of the stakeholders for each report/company and the total number of actions per level of engagement and per stakeholder.	Stocker et al., (2020)
Stakeholder Engagement Score / Performance	• Stakeholder engagement is high in situation which activities [transactional and relational interactions] are numerous and/or these activities are of high quality.	High SE is related to both the quantity (variety) and quality (strength) of the relationships with stakeholders. Number of stakeholders (focus) and frequency of interaction in different levels (extension).	Greenwood (2007) Stocker et al., (2020)

The data analysis was performed by analyzing the content of the reports in relation to the engagement actions reported by each of the companies, classifying them according to the levels proposed by this work (Level 1, Level 2, and Level 3). The identification of the engagement actions was based on reading and analyzing the "Stakeholder Identification & Engagement" section available in the GRI framework. This is a mandatory section on the elaboration and disclosure of reports on the following issues: G4-24 – List of identified stakeholders, G4-25 – Basis for identifying stakeholders, G4-26 – Approach to stakeholder engagement, and G4-27 – Key topics and concerns of stakeholders.

In addition to identifying the total number of actions per level of engagement, we identified the number of actions related to each group of stakeholders. We calculated the frequency of stakeholders for each report/company and the total number of actions per level of engagement and per stakeholder. The most cited stakeholder groups at each level were used to analyze the focus of the engagement whereas the number of stakeholders cited was used to analyze the extent of the engagement. Then, we calculated the frequency of each stakeholder group for each report/company, and the division of the engagement actions for each stakeholder, thus segregating the engagement actions by level and by group of stakeholders.

4.4 Content analysis technique

Sustainability reports provide valuable financial and non-financial information on corporate sustainability profiles and relationships with stakeholders. To evaluate such information, content analysis techniques can be applied. Many studies have applied these techniques mainly to assess corporate environmental profiles, measuring the amount of information published in the reports. The units of measurement are generally keywords (Hahn & Lülfs, 2014), phrases (Perrini, 2005), pages (Unerman, 2000), or paragraphs (Rahman Belal, 2001). In addition, the coding systems are classified into two additional categories, such as mechanistic and interpretive (Beck et al., 2010).

Content analysis using a dictionary or word frequency counts is particularly useful when employing qualitative data to answer more quantitative research questions (Krippendorff, 1980). In this study, the sustainability reports provide qualitative data to answer (test) quantitative questions (hypotheses) regarding firm performance.

Such content analysis techniques, however, are not exempt from weaknesses and limitations. One weakness of content analysis is that it focuses exclusively on the value ("how much") of the disclosures, without examining the meaning ("what") of the reported information (Guthrie & Abeysekera, 2006). Another weakness lies in the text format. In particular, a different font size in the information disclosed may underestimate or overestimate the final score of the measurement index, affecting the results of the assessment (Unerman, 2000; Tsalis et al., 2018).

To try to reduce this weakness, the classification system for engagement actions proposed by Stocker et al. (2020) is used, which proposes a way to find the engagement initiatives reported in the sustainability reports and rank them according to the level of quality of engagement. It also analyzes which stakeholder or group of stakeholders the actions are being reported to. This allows a more robust analysis of the actions reported, by not only counting the frequency of words, but also their association with the research objective, which is to identify engagement with the various groups of stakeholders.

The process of coding the data, reading the reports, and analyzing the engagement section of the reports was initially carried out manually, and after the categorization it was systematized using the NVivo® qualitative data software. Three steps were followed to ensure validity in the collection and analysis of the qualitative data, as suggested by Unerman (2000) and Krippendorff (2018):

Step 1) Preparation before collection and analysis, which involves consulting thesauruses and dictionaries in Portuguese, English, and Spanish for synonyms of "stakeholders" (e.g., employees, community, customers, and shareholders) and various engagement initiatives (e.g., reports, newsletters, forums, customer service, and working groups).

A thesaurus is an instrument that gathers terms chosen from a previously established conceptual structure and is intended for comparison, indexing and retrieving documents and information in a given field of knowledge. In a thesaurus, each term corresponds to a concept. Once accepted, this term becomes a "descriptor" or an "indexer." If the term is not accepted as a "descriptor", it can be accepted as "remissive," that is, it refers to an authorized term (descriptor). All terms are related to each other. The conceptualization of terms and the relationships between them are defined by the area's ontological system and by the study of each term.

For the data collection and coding, one of the main pieces of information is which stakeholder group the actions are carried out for as well as how many times. Table 7 shows the six main groups of stakeholders identified, and their respective similar descriptors, in English, Spanish, and Portuguese.

Table 7 - Words used to identify stakeholder groups in English, Portuguese and Spanish

Stakeholder Groups	**Synonyms and variations**	**Grupos de Interés**	**Sinónimos y variaciones**	**Públicos de Interesse**	**Sinônimos e variações**
Employee	Talent; laborer; Workforce; human resources; workers; professional; employee unions; Staff member	*Empleado*	Obrero; Personal; Miembro del equipo; Profesional; colaborador; dependiente; trabajador; funcionário; operário;	*Funcionário*	Talento; recursos humanos; Empregado; Trabalhador; equipe interna; público interno; colaborador;

					Servidor interno;
Shareholder	Investor; board composition; shareowner; venture capitalist; stockholder; bondholders,	*Accionista*	socio; copartícipe, capitalista; inversores; rentista; asociado	*Acionista*	Investidor; Sócio; Mercado Financeiro; conselho financeiro;
Community	Communities; Neighborhood; local residents; society, Non governamental organizations; NGO; indigenous people; human rights; activists; general public; local association, citizens	*Comunidad*	Sociedad; Comunidades; generalidad; residents locales; organizaciones no gubernamentales; pueblos indigenas; activistas; público em general	*Comunidade*	Comunitário; moradores; vizinhos; vizinhança; ONG; organização da sociedade civil; agentes sociais; indígena; associação local; público geral, cidadãos
Customer	Customers; Client; Consumer, consumers, Purchaser; shopper; buyer	*Cliente*	Comprador; consumidor; clientela;	*Cliente*	Comprador; Consumidor;
Supplier	Supply chain, vendor, contractor; seller; providers.	*Proveedor*	Contratistas; cadena de suministro; vendedor; distribuidor; suministrador; despensero	*Fornecedor*	Revendedores; produtor; cadeia de suprimentos; empreiteiro; vendedor; provedor;
Government	Local-government; policymakers; public authorities; political bodies; State;Politics; public power;	*Govierno*	Autoridades públicas; cuerpos políticos; Estado; responsables políticos; poder público	*Governo*	Poder público; órgãos políticos; Estado; Governantes; Conselho Municipal; órgão público; legislador;

Step 2) Internal validation comparing codings by different analysts. The sample of reports was analyzed by three different analysts, one whose native language was Portuguese, one whose native language was Spanish, and one whose native language was English. The compared results helped to calibrate the data collection regarding the engagement actions for each type of report, enabling greater validity of the systematic collection carried out through NVivo.

Tables 8, 9 and 10 show the different descriptors for the engagement actions at each level, which were based on the classification model of Stocker et al. (2020) and adapted to the Portuguese and Spanish languages, as validated by the analysts.

Table 8 - Words that represent engagement actions in English reports

Construct	Operationalization and words for content analysis
Stakeholder Information Strategy – Level 1	Annual Report, Reports, Corporate publication, Briefings, Disclosures, Brochures, Magazines, Website, email, Webinars, Intranet, Social Media, Twitter, Facebook, Newsletters, Press releases; Guide; Manual, Monitor, Compile Actions, Terms of Data Protection & Confidentiality, Contracts, Registration; dialogue one-way;
Stakeholder Response - Level 2	Feedback; Back Channel Dialogue, Forums, Surveys, hearings, interviews; Market Surveys/Research, Meetings, Conferences, Face-to-face, Sessions, Audits, Debates, Call center; Contact Center, Phone, Customer Service, Interactions, Complaints & Suggestions, Contracts, Registration, Tours, Exhibitions, Events, Training & Development, Monitor, response activity, respond, dialogue two-way.
Stakeholder Involvement Strategy – Level 3	Initiatives, Actions, Cooperation, Working Groups, Focus groups, Programs, Commissions, Committees, Agreements, Associations, Project; Joint Projects (formal / informal), Programs, Alliances. Strategic Philanthropy/Sponsorship, Advisory Activities; and involvement activity, involve, decisions, dialogue multi-way.

Table 9 - Words that represent engagement actions in Spanish reports

Construct	Operationalization and words for content analysis
Estrategia de información de los grupos de interés - Nivel 1	Informe anual, reporte, informes, publicación corporativa, sesiones informativas, divulgaciones, folletos, llamadas telefónicas, correo eletrônico, revistas, sitio web, intranet, redes sociales, Twitter, Facebook, boletines informativos, cartas, comunicados de prensa; Guía; Manual, Monitorear, Compilar Acciones, Términos de Protección y Confidencialidad de Datos, Contratos, Registro; diálogo unidireccional;
Estrategia de respuesta de los grupos de interés - Nivel 2	Retroalimentación, feedback, foros, encuestas, audiencias, entrevistas; Encuestas de mercado / Investigación, Reuniones, Conferencias, Presencial, Sesiones, Auditorías, Debates, Call center; Contact Center, sistemas de quejas, Teléfono, Atención al Cliente, Interacciones, Quejas y Sugerencias, Contratos, Inscripciones, Visitas, Exposiciones, Eventos, Capacitación y Desarrollo, Monitoreo, respuesta de actividad, respuesta, diálogo bidireccional.

Estrategia de participación de los grupos de interés - Nivel 3	Iniciativas, Acciones, Cooperación, Grupos de Trabajo, Focus groups, Programas, Comisiones, Comités, Convenios, Asociaciones, Proyecto; Proyectos conjuntos (formales / informales), programas, alianzas. Filantropía / patrocinio estratégico, actividades de asesoramiento; y actividad de participación, participación, decisiones, diálogo multidireccional.

Table 10 - Words that represent engagement actions in Portuguese reports

Construct	Operationalization and words for content analysis
Estratégia de informação dos públicos de interesse - Nível 1	Relatório Anual, Relatórios, Publicações; Briefings, Divulgações, Brochuras, Revistas, Site, Email, Intranet, Redes Sociais, Twitter, Facebook, Teleconferencias, Newsletters, Comunicados à imprensa; Guia; Manual, Monitorar, Compilar Ações, Termos de Proteção e Confidencialidade de Dados, Contratos, Registro; informar, diálogo unilateral;
Estratégia de resposta dos públicos de interesse - Nível 2	Comentários; Feedback, Canal de Diálogo, Fóruns, Pesquisas, audiências, entrevistas; Pesquisas / Pesquisas de Mercado, Reuniões, Conferências, Sessões, Auditorias, Debates, Call center, Telefone, Atendimento ao Cliente, Interações, Reclamações e Sugestões, Contratos, Inscrições, Passeios, Exposições, Eventos, Treinamento e Desenvolvimento, Monitorar, resposta, responder, diálogo bidirecional.
Estratégia de envolvimento dos públicos de interesse - Nível 3	Iniciativas, Ações, Cooperação, Grupos de Trabalho, Grupos Focais, Programas, Comissões, Comitês, Convênios, Associações, Projeto; Projetos Conjuntos (formais / informais), Programas, Alianças. Filantropia / patrocínio estratégico, atividades de consultoria, envolvimento, envolver, decisões, diálogo multi-vias.

Step 3) External validation involving verification of the coded material and sample of reports, with the corroboration of two specialists in GRI sustainability reports and the international guidelines for social and environmental disclosure. The data coding followed the same criteria applied by Stocker et al. (2020), who performed manual coding in 116 reports. For this study, the content analysis was systematized through NVivo. There was also an external validation and recoding of a sample of 10 reports, with a reliability index of 90% compared to manual and systematic coding.

4.5 Operationalization of Engagement Variables Database

The operationalization of the data collection carried out via the NVivo12 software and the calculation of the scores for each of the engagement variables, performed in Excel, followed a number of steps. In the first stage, the words for coding were inserted, considering the stakeholders in combination with each of the engagement actions and their respective analogous words. The second stage involved inserting these results in the respective columns that classify each action into the three levels of engagement, namely: Level 1 – number of actions intended to provide information to stakeholders, Level 2 – number of actions intended to respond to stakeholders, and Level 3 – number of actions intended to involve stakeholders.

In addition to this information, the frequency of the stakeholders for each report/company, called "focus," and the frequency of stakeholders in each engagement level, called "extent," were collected. A calculation for each engagement level was performed using scores 1, 2, and 3 – the total number of actions per engagement level – multiplied by the level score. The total engagement score or engagement performance represented the engagement actions by level and by frequency of stakeholders. This construct of total engagement/engagement performance considers that a high value is related both to the quantity (variety of actions) and to the quality (strength) of relationships with stakeholders.

Table 11 shows an example of the application of the categorization of engagement actions, also illustrated in this excerpt from the Dominion Energy report, when referring to engagement with local communities, customers, shareholders, and employees:

"*Our goal is to ensure that people's voices are heard. We hold public meetings and meet with stakeholder groups to hear ideas and understand needs. We are developing new processes to help us coordinate with groups whose voices are not always heard. We use surveys and ongoing interactions to evaluate the effectiveness of our engagement, and continue to evaluate our approaches for opportunities to improve it.*" (Dominion Energy – USA)

Table 11 - Example of classifying engagement actions for customers in Dominion Energy – USA

Type of Engagements for Customers	**Frequency**	**Level***
Dominion Energy Website	Regularly throughout the year	Level 1
Dominion Energy Social Media (Twitter, Facebook)	Regularly throughout the year	Level 1
Billing statements and customer newsletter	Monthly	Level 1
Customer feedback through call center	Continuously	Level 2
Key customer meetings	Regularly	Level 2
Customer focus groups	Periodically	Level 3
Press releases and local media	As needed	Level 1

Table 12 presents a sample of the database formed with the engagement variables that will serve as inputs for the multivariate analysis and testing of the hypotheses. At the end of this dissertation, appendix 1-6 are presented with some examples from the GRI sustainability reports that were used for the analysis, and that represent some of the associations that will serve as an example for the discussion of the results.

Table 12 - Partial sample of the database with engagement variables

ID	Company	Year	Country	Level 1	Level 2	Level 3	Score1	Score2	Score3	Focus	Extension	Engage.Total
56	Dominion	2014	USA	29	28	10	29	56	30	9	10	11,90
56	Dominion	2015	USA	34	32	12	34	65	35	9	12	16,02
56	Dominion	2016	USA	39	30	13	39	60	40	9	13	17,49
56	Dominion	2017	USA	39	25	16	39	50	47	9	12	16,60
56	Dominion	2018	USA	40	22	14	40	44	42	9	11	14,29
56	Dominion	2019	USA	41	32	18	41	64	54	9	14	22,75
97	ExxonMobil	2014	USA	10	32	6	10	64	18	8	7	6,77
97	ExxonMobil	2015	USA	12	38	7	12	77	22	9	10	10,97
97	ExxonMobil	2016	USA	14	36	9	14	72	26	9	10	11,35
97	ExxonMobil	2017	USA	17	30	10	17	60	31	10	11	11,75
97	ExxonMobil	2018	USA	21	42	12	21	84	37	8	11	16,15
97	ExxonMobil	2019	USA	22	34	14	22	68	42	8	11	13,94
28	CEPSA	2014	Spain	7	9	3	7	18	9	9	3	1,04
28	CEPSA	2015	Spain	7	9	4	7	17	12	9	3	1,15
28	CEPSA	2016	Spain	6	8	3	6	16	9	10	3	1,00
28	CEPSA	2017	Spain	9	9	3	9	18	9	12	4	1,57
28	CEPSA	2018	Spain	10	10	4	10	20	12	11	5	1,98
28	CEPSA	2019	Spain	12	11	5	12	23	15	10	5	2,48
159	Petrobras	2014	Brazil	21	16	3	21	32	9	9	6	3,46
159	Petrobras	2015	Brazil	20	15	3	20	30	8	8	5	2,87
159	Petrobras	2016	Brazil	19	14	3	19	28	8	8	4	2,39
159	Petrobras	2017	Brazil	17	17	4	17	34	12	7	5	3,01
159	Petrobras	2018	Brazil	23	22	4	23	44	12	7	6	4,39
159	Petrobras	2019	Brazil	21	25	7	21	50	21	7	6	5,59

4.6 Measurement of Performance Variables

To measure firm performance given the different engagement strategies and quality of relationships in the process of engagement with stakeholders, the score generated by the data obtained through content analysis (data coding) was compared with the proxies for financial, social, and environmental performance.

For corporate social performance, ESG (environmental, social, and governance) data are used, with a focus on the social dimension of the database, whose construct is composed of various social organizational results of the company. The ESG data were obtained from the Thomson Reuters *Refinitiv*® database.

Corporate environmental performance is measured using the environmental indicators reported in the GRI reports. Although this construct is collected using the same basis as the engagement variables, there is no collinearity of the information, since the environmental indicators refer exclusively to the items of water consumption, gas emissions, and actions to combat climate change, among others of the environmental dimension.

For corporate financial performance, the financial variable ROA (return on assets) is used, whose financial data were obtained using the Thomson Reuters *DataStream*® database. The ROA proxy is used to assess the financial performance of the companies in the sample due to its wide use in strategy studies (Orlitzky, Schmidt, & Rynes, 2003; Boaventura, Silva, & Bandeira- De-Melo, 2012), allowing for greater comparability of the results with other research on the theme.

A central point of this research is the analysis of company performance over time. As highlighted in the hypotheses section on the short and long-term discussion in strategy and performance studies (Russo & Fouts, 1997; Garcia-Castro & Aguilera, 2015; Flammer & Bansal, 2017; Pereira et al., 2020), this study evaluates a six-year timeframe of disclosure of sustainability reports, starting in 2014 and ending in 2019. For this purpose, the impact on performance is evaluated using a temporal lag for short-term performance of t0, t + 1, t + 2, while the temporal lag for long-term performance is t + 3, t + 4, and t + 5, covering the data panel of performance variables from the years 2014 to 2019.

Table 13 provides the theoretical justifications for the performance measurement choices, as well as the authors who provide a basis for measuring the variables.

Table 13 - Measurement of corporate performance

Construct	Conceptual definition	Operational	Authors
CSP – Corporate Social Performance	CSP refers to the results of corporate policies and practices that reflect the business responsibility for the various social assets. It's a multidimensional construct whose behavior varies according to its inputs (environmental strategies), processing (governance) and outputs (programs and social actions). ESG performance is a multidimensional construct composed of several social and environmental organizational outcomes related to different stakeholders.	Social Dimension of the ESG Rating & Indices ESG data by Refinitiv® - Thomson Reuters **	Carroll (1979) Wood (1991) Waddock & Graves (1997) Xie et al. (2019).
CFP – Corporate Financial Performance	CFP seeks to reflect, through different indicators, the company's financial results, investor satisfaction with profit maximization, the company's increased market value, cash-generating capacity, internal financial efficiency or subjective estimates for financial performance.	Return on assets (ROA) - Financial data obtained by DataStream® - Thomson Reuters*	Jensen (2001) Orlitzky et al. (2003) Ortas, Gallego-Alvarez, & Álvarez-Etxeberria (2015)
CEP – Corporate Environmental Performance	CEP as the results of disseminating information about different aspects of environmental indicators, such as biodiversity, climate change, water resources, wastewater, waste materials.	GRI-Energy score - environmental performance indicator by Global Reporting Initiative	Fiandrino, Devalle & Cantino (2019) Torelli, Balluchi & Lazzini (2020)

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4.7 Multivariate Analysis Method

For this research, ordinary least squares (OLS) regression is used for the panel data. The OLS regression method requires some assumptions, including homoscedasticity of the regression residues and the absence of multicollinearity. To verify these assumptions, the Breusch-Pagan test was applied to check the heteroscedasticity of the data, based on the estimation of the model with robust standard errors for heteroscedasticity (Wooldridge, 2010). The multicollinearity analysis was performed using the variance inflation factor (VIF) test (Hair et al., 2006).

The hypotheses were tested through balanced panel data regression models. Panel data, also known as longitudinal data, are multidimensional in nature, where time series are recorded for a set of information and it is possible to follow its evolution over time (Hair Jr & Favero, 2019). The statistical tests and estimation of the models were performed using the R statistical software package. The script with all the commands executed in Software *R* is available in Appendix 7.

Estimations were carried out via fixed and random models, using the Hausman test to decide which model was most appropriate for the sample. Mediation tests were also performed between model variables. Mediation analysis is used when we believe that the relationship between the dependent and independent variables is mediated through another independent variable. It is noted here that there is a relationship between X and Y, but it is intermediated by M (Hair et al., 2016; Hayes, 2015).

The general model for the panel data is represented by:

$$y_{it} = ß_0 it + ß_0 it\, x\ it + \cdots + ß_0 nit\, x_{kit} + e_{it} \qquad (1)$$

In this notation, subscript *i* denotes the different individuals and subscript *t* denotes the period of time that is being analyzed. $ß_0$ refers to the intercept parameter and $ß_k$ to the slope corresponding to the k-th explanatory variable of the model. It is necessary to specify assumptions about the general model in order to make it operational. Among the models that combine time series data and cross-sectional data, two models are used: the fixed effects regression model and the random effects model.

There are three methods for establishing statistical mediation: (a) causal steps, (b) differences between coefficients, and (c) product of coefficients. These methods are based on the following equations.

$$Y=i_1+cX+e_1 \quad (1)$$

$$Y=i_2+c' X+bM+e_1 \quad (2)$$

$$M=i_3+aX+e_3 \quad (3)$$

where i1, i2, and i3 are intercepts, “c” and “c'” are coefficients that relate the independent variable to the dependent one without the mediating variable and to the mediating variable, respectively, “b” is the coefficient that relates the mediating variable to the dependent variable, and “a” is the coefficient that relates the independent variable to the mediator.

According to Imai, Keele and Tingley (2010), in the product coefficient method, the product $\hat{a}\hat{b}$ is used as an estimator of the indirect effect; whereas in the method of differences between coefficients, the difference between the total effect and the direct effect, c-c', is used as an estimator of the indirect effect. In this work, we use the coefficient product method, as recommended by Imai et al. (2010), due to its robustness. For inferences about the effects, the non-parametric bootstrapping resampling technique available in the mediate package in the free software R Core Team 2020 (Tingley et al., 2014) is used.

We call the X-Y relationship a direct effect from X to Y and the X-M-Y relationship an indirect effect from X to Y. Thus, we can define five types of mediation (and not mediation) as follows (Nitzl, 2016):

1. Direct-effect non-mediation: the direct effect is significant, but the indirect effect is not.
2. No-effect non-mediation: the direct and indirect effects are not significant.
3. Complementary mediation: the direct and indirect effects are significant and point in the same direction.
4. Competitive mediation: the direct and indirect effects are significant but point in opposite directions.

Indirect mediation: the indirect effect is significant, but the direct effect is not.

5. RESULTS

The results chapter is divided into three sections. First, the sample is characterized regarding the total number of companies analyzed, the sectors, company type, maturity, and experience in the disclosure of reports. In this first section, the geographical distribution of countries and regions is presented, as well as the language of the reports analyzed. There is also a characterization of the most frequent stakeholder groups in the identified actions as well as the distribution to the different levels of engagement actions. The second section presents a descriptive analysis of the data, obtaining the characterization of the sample and variables over time. The third section presents the multivariate data analysis, which was used to test the proposed hypotheses.

5.1 Sample Characterization

The composition of the organizations studied is divided according to the GRI's own classification into private companies, public companies, and state-owned enterprises (Table 14). A private company is characterized as being privately owned, having an internal governance structure, not having its shares traded on public exchanges, and there being no IPO (initial public offering). Public companies are characterized by a public shareholding composition, where the company's shareholdings are freely traded in stock exchanges or over-the-counter markets. State-owned enterprises are organizations created and maintained by the government, which is the majority shareholder. In this sense, these companies can be partially or fully managed by the government, and it is common for specific commercial activities, for example the exploitation of natural resources such as oil and gas, to be the responsibility of state-owned enterprises.

Table 14 - Sample characteristics

Characteristics	Item	Frequency	Percentage
Company Type	1- Private company	67	31,7
	2 - Public Company	82	39,4
	3 - State-owned Company	59	28,4
		208	100
Sector Supplementary	1-Energy	46	22,1
	2-Eletric Utilities	71	34,1
	3-Oil & Gas	91	43,8
		208	100
Reporting Maturity	1-Poor / Sufficient	36	17,3
	2-Satisfactory	91	43,8
	3-Sophisticated	81	38,9
		208	100

The subsectors analyzed were energy, electric utilities, and oil and gas. Although each segment has specific characteristics that can impact the way sustainability activities are developed and stakeholders are engaged, there is a large presence of companies operating in multiple subsectors. In any case, to differentiate them, according to Table 15, we used the following main activities for the energy sector: renewable, solar, wind power, hydroelectric, biomass, geothermal, and chemical energy. It is noteworthy that most companies are energy companies that use renewable sources. This does not represent better environmental performance, since activities such as chemical, biomass, and hydroelectric energy still have a great environmental impact, carbon emissions, and varied demands from stakeholders.

The electric utilities subsector represents companies responsible for providing electricity, which is generally a public service and regulated by the market and government institutions. There are a large number of subsidiary companies in this subsector, mainly multinational companies operating in different geographical regions. Considering the unit of analysis of the reports, the stakeholder groups are usually specific to the location where the company operates, always in the same segment, unlike the other subsectors.

Finally, the oil and gas subsector represent the largest companies in the sample and the energy sector. It is characterized by the highly competitive oil industry and has as main activities the exploration, production (upstream), refining (downstream), and distribution of oil, gas, and biofuel. These generally do not operate in only a single segment or in a single country or region.

The oil and gas market is strongly influenced by political and macroeconomic decisions, and mostly involves state-owned government companies and large publicly-traded conglomerates.

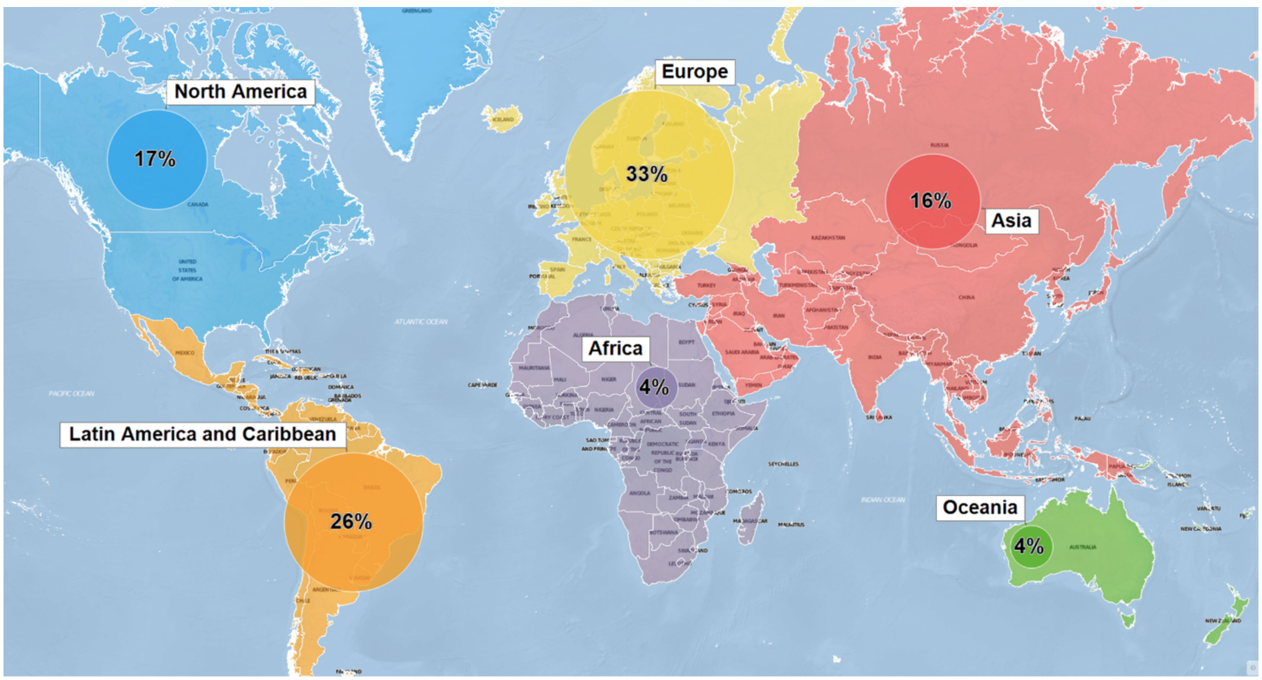
Table 15 - Partial list of companies analyzed, separated by sub-sector

Company Type	Organization (*partial list, n. total = 208)*	Main Activities
Energy	CLP (China), Contact Energy (New Zealand), Elector (Spain), FGC (Russia), Gail India Limited (India), Ienova (Mexico), Itaipu Binacional (Brasil), Masquard & Bahls (Germany), Masdar (Arab Emirates), PT Badak (Indonesia), Sempra Energy (USA), Endesa (Chile), Alksa Energy (Turkey).	Renewable energy, solar energy, Wind power, Hydroelectric, biomass, geothermal, chemical energy
Eletric Utilities	A2A (Italy), American Eletric Power (USA), AES Eletropaulo (Brazil), Alinta Energy (Australia), Axpo (Switzerland), BAFS (Thailand), CEMIG (Brazil), Codensa (Colombia), CPFL Energia (Brazil), Edenor (Argentina), E.ON (Germany), Duke Energy (USA), Enexis (Netherlands), ESB (Ireland), TechnipFMC (France) Hydro Québec (Canada), Xcel Energy (USA).	Power industry, generation, transmission and distribution of electricity
Oil & Gas	BP British Petroleum (UK), Ecopetrol (Colombia), Petrobras (Brazil), ENEC (Arab Emirates), Engen (South Africa), Exxon Mobil (USA), Farabi Petrochemicals (Saudi Arabia), Gazprom Neft (Russia), Indian Oil (India), Repsol (Spain), Rosneft (Russia), Shell Royal Dutch (Netherlands), Shenhua Energy (China).	Exploration, production, refinement, and distribution of oil and gas

The geographic distribution of the companies analyzed was categorized according to the regions flagged on the GRI platform, as illustrated in Figure 4. Considering the 208 companies in the sample, 33% (n=409) are in Europe, 26% (n=330) are in the territory of Latin America and the Caribbean, thus including all of Central America and Mexico, 17% (n=208) companies are in North America (United States and Canada), 16% (n=199) are in the territory of Asia, 4% (n=54) are in Africa, and 4% (n=48) are in Oceania. Despite the international guidelines for GRI parameters, many reports are produced by the parent company, reporting on its subsidiaries from various countries and regions, and in other cases, for each country in operation, the company issues a different report.

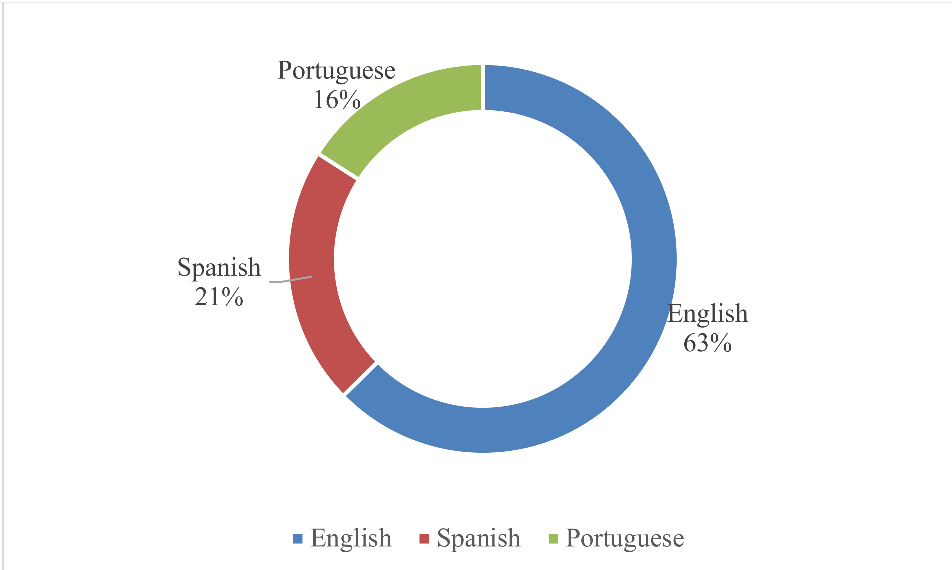
Although the number of companies and reports from Asian countries is high, there are many reports not in English, mainly for companies from Russia, China, South Korea, and Japan, which are mostly state-owned enterprises and whose focus in communication and engagement is on the country's own stakeholder groups. There is still a low participation of companies from African countries, which even if they are present in GRI, are not yet following all the standards and criteria of G4, which was used for this sample.

Figure 4 - Geographical distribution of the organizations analyzed



Regarding the language of the reports analyzed, 63% (n=782) are in English, 21% (n=267) are in Spanish, and 16% (n=199) are in Portuguese (Figure 5). These numbers represent the entirety of available reports from the countries of Latin America and the Caribbean, mostly published in Spanish, then English, and lastly in Portuguese. There is a large presence of multinational companies in these countries, and often subsidiary companies produce and release sustainability reports in English or in the native language of the host country.

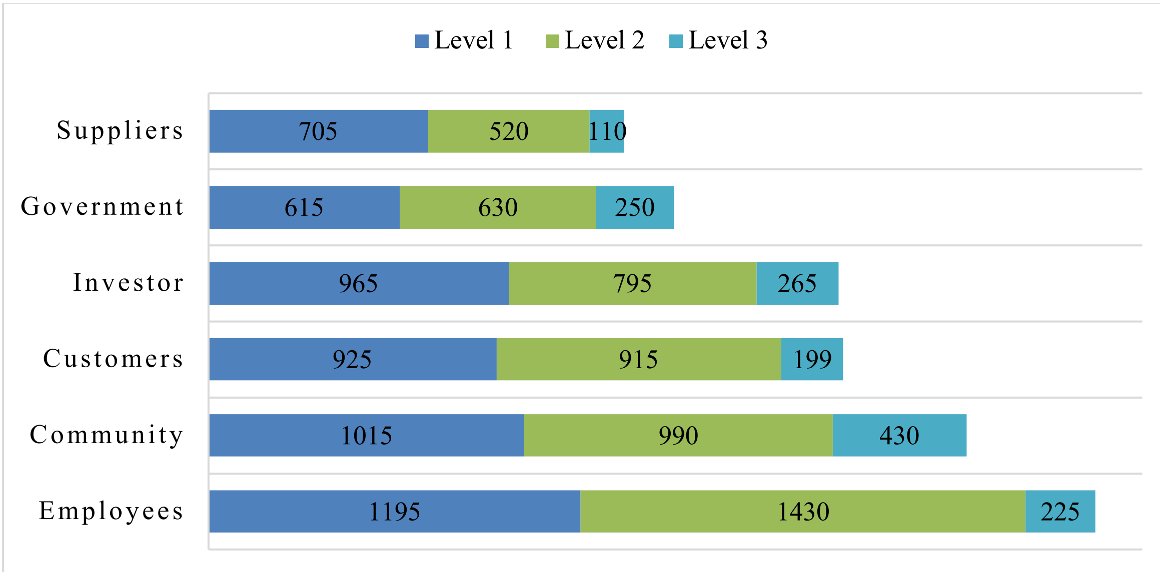
Figure 5 - Distribution by language of the analyzed reports



5.2 Stakeholder Identification and Engagement Levels

The total number of reports analyzed was 1,248, from 208 different companies from 49 countries, totaling 12,179 observations for the engagement variables. Figure 6 highlights which stakeholders received most attention for each level of engagement in relation to the total number of engagement actions. It can be concluded that employees are generally the stakeholders that are most contemplated by level 1 and 2 actions in most reports/companies, while communities and shareholders are the primary receivers of level 3 actions. It is also possible to observe that although the majority of the engagement actions classified in levels 1 and 2 are proportional to the frequency of identification of stakeholders (employees, shareholders, customers, etc.), level 3 engagement actions show a different distribution, with the efforts and engagement strategies being more evidently focused on stakeholders such as the community, investors, and government.

Figure 6 - Level of engagement concentration per identified stakeholder



In addition to identifying which stakeholders appeared most frequently in the reports, one of the objectives of this research was to classify the engagement actions carried out for stakeholders into three different levels of engagement. In level 1 there were 5,420 engagement actions (45%), in the level 2 there were 5,280 actions (42%), and in the level 3 there were 1,479 actions (12%). Our findings reveal that employees are generally the stakeholders that are most contemplated by level 1 and 2 actions in most reports/companies, while communities, investors, and governments are the primary receivers of level 3 actions. Table 16 presents the information described above in addition to the engagement actions most mentioned in the reports for each engagement level.

Table 16 - Engagement level, actions, and stakeholders

Engagement Level	**Number of Actions**	**Percentage of Actions %**	**Most Cited Actions**	**Most Cited Stakeholders in the Actions**
Level 1 - Information	5420	45%	Annual Report Newsletters / Press releases Website / intranet Social media	Employees (1195), Community (1015), Investors (965), Customers (925), Suppliers (705), Government (615).
Level 2 - Response	5280	42%	Forums Surveys Feedback	Employees (1430), Community (990), Customers (915), Investors (795),

			Dialogue Channel Meetings & Events	Government (630), Suppliers (520).
Level 3 - Involvement	1479	12%	Work Groups & Discussions Joint Projects Programs and Associations Partnerships	Community (430), Investor (265), Government (250), Employees (225), Customers (199), Suppliers (110),.
Total	***12179***	***100%***		

5.3 Descriptive Data Analysis

The database for this research is formed of the stakeholder engagement variables, these being level 1, level 2, level 3, engagement focus, extent of engagement, and total engagement. It is also formed of the performance variables, namely: CFP (corporate financial performance), CSP (corporate social performance), and CEP (corporate environmental performance). Table 17 shows the descriptive statistics for the six years of the data panel for the 208 companies studied.

Table 17 - Descriptive statistics

Year		Min.	Max.	Average	Variance
2014	Level1	0,000	63,000	16,760	150,183
	Level2	0,000	67,319	15,458	101,984
	Level3	0,000	19,000	1,495	5,845
	Eng.Total	4,000	176,000	51,534	851,951
	Focus	2,000	14,000	8,486	6,106
	Extension	6,000	1380,000	305,010	50861,739
	Assets	998701,000	1014424676,000	46635781,149	22069260482519300,000
	CFPt	27640,031	292163842,000	18583143,364	1736586535846600,000
	CSPt	0,036	4,520	4,000	0,007
	CEPt	1,530	5,428	2,423	0,517
2015	Level1	0,000	69,440	17,153	169,057
	Level2	0,000	63,953	15,890	115,586
	Level3	0,000	22,800	1,580	7,071
	Eng.Total	4,360	188,160	53,038	1008,159
	Focus	2,180	14,950	8,599	6,927
	Extension	6,540	1367,520	314,260	57397,718
	Ativo	1073885,000	1105721310,000	49478549,248	25012171806588100,000
	CFPt	25792,145	347084649,560	21838773,228	2278834289109770,000
	CSPt	0,250	5,270	3,700	0,004
	CEPt	0,839	12,700	2,593	1,893
2016	Level1	0,000	77,773	17,684	199,731

	Level2	0,000	66,404	16,455	137,569
	Level3	0,000	27,360	1,679	8,876
	Eng.Total	4,752	210,739	54,999	1258,327
	Focus	2,376	17,193	8,692	8,243
	Extension	7,129	1531,622	325,344	66885,771
	Ativo	1022629,000	1208701675,000	55219041,617	31502546619911000,000
	CFPt	24244,270	519970003,000	22489080,574	2876615178626280,000
	CSPt	0,510	4,680	3,700	0,008
	CEPt	0,210	11,731	3,118	1,374
2017	Level1	0,000	89,690	18,300	239,471
	Level2	0,000	71,052	17,134	168,101
	Level3	0,000	32,832	1,797	11,433
	Eng.Total	4,521	236,028	57,330	1603,694
	Focus	2,492	19,771	8,784	10,118
	Extension	7,770	1715,417	338,617	80256,648
	Ativo	814031,000	1359172441,000	61018631,407	39097891610522100,000
	CFPt	19445,236	599149983,000	21986814,513	2951537279595110,000
	CSPt	0,470	3,790	3,200	0,008
	CEPt	0,230	24,233	3,555	5,644
2018	Level1	0,000	104,938	19,068	294,375
	Level2	0,000	76,203	17,966	211,491
	Level3	0,000	39,398	1,936	15,044
	Eng.Total	4,114	264,351	60,182	2090,757
	Focus	2,292	22,737	8,877	12,725
	Extension	8,469	1700,000	353,743	95924,829
	Ativo	642290,000	1425638779,000	62664086,413	41753391283813400,000
	CFPt	37857,151	677716287,000	24224674,956	3864828459058270,000
	CSPt	0,640	3,800	3,000	0,008
	CEPt	0,270	10,646	2,465	1,101
2019	Level1	0,000	122,777	19,992	368,375
	Level2	0,000	90,681	18,941	270,684
	Level3	0,000	41,368	2,072	17,711
	Eng.Total	3,744	296,073	63,464	2720,885
	Focus	1,994	26,250	8,993	16,263
	Extension	9,232	1929,354	372,568	120589,034
	Ativo	575280,000	1503503484,000	65617203,152	45478915084941800,000
	CFPt	27242,119	752966638,000	26230202,400	4807886754781860,000
	CSPt	0,419	5,800	3,700	0,008
	CEPt	0,870	11,888	2,327	1,358

** N=208*

Source: Research data

5.4 Estimation of hypothesis 1

H1 *The level of stakeholder engagement has a positive influence on the organization's performance over time*

In table 18, we study the relationship between corporate performance and engagement level. We observe positive significant relationships between corporate financial and social performance and engagement levels ($p<0.05$). Corporate environmental performance, however, does not have a significant relationship ($p>0.05$). For a level of significance of the test, agreed at 5%, a given coefficient is said to be statistically significant if the associated P (or P-value) is less than 0.05.

Table 18 - Panel models for Corporate Performance and Engagement Levels

Corporate Performance	B	SE	Z	P-value	R^2
Financial					
Intercept	13836407	4202005	3.293	<0.001	0.140
Inform	480323	114054	4.211	**<0.001**	
Intercept	6012048	4172048	1.441	0.150	0.470
Response	974820	123887	7.869	**<0.001**	
Intercept	14897634	3692546	4.035	<0.001	0.510
Involve	4353149	532732	8.171	**<0.001**	
Social					
Intercept	0.034	0.007	5.166	<0.001	0.030
Inform	0.001	0.000	2.061	**0.039**	
Intercept	0.029	0.007	4.269	<0.001	0.070
Response	0.001	0.000	3.040	**0.002**	
Intercept	0.039	0.005	7.293	<0.001	0.040
Involve	0.002	0.001	2.177	**0.030**	
Environmental					
Intercept	0.305	0.112	2.729	0.006	<0.001
Inform	-0.002	0.004	-0.427	0.669	
Intercept	0.317	0.114	2.771	0.006	<0.001
Response	-0.002	0.004	-0.567	0.571	
Intercept	0.290	0.093	3.134	0.002	<0.001
Involve	-0.009	0.018	-0.491	0.623	

Legend: B – Regression Estimate. SE – Standard Error. Z – Z Value. R^2 – Determination Coefficient.

5.5 Estimation of hypothesis 2

H2: The higher the engagement level, the longer its effect on performance over time.

H2a: A low level of stakeholder engagement has a positive relationship with the organization's short-term performance.

H2b: *A high level of stakeholder engagement has a positive relationship with the organization's long-term performance.*

In table 19, we study the relationship between corporate performance (Financial, Social and Environmental) and engagement level inform (1) in short-term (t+1, t+2) and engagement involve (level 3) in long-term (t+3, t+4 and t+5). We observe positive significant relationships between engagement level inform and corporate social and financial performance in short-term (t=1) ($p<0.05$) and engagement level involve and financial performance in long-term (t =3, 4, or 5). All other models do not have a significant relationship ($p>0.05$).

Table 19 - Panel models for Corporate Performance and Engagement Levels in short and long term.

Corporate Performance	B	SE	Z	P-value	R^2
Financial					
Intercept	18150732	4586407	3.958	<0.001	0.040
Inform (t=1)	292430	138510	2.111	**0.035**	
Intercept	20500931	4959874	4.133	<0.001	0.020
Inform (t=2)	184945	160903	1.149	0.250	
Social					
Intercept	0.032	0.007	4.443	<0.001	0.050
Inform (t=1)	<0.001	<0.001	2.241	**0.025**	
Intercept	0.030	0.010	3.702	<0.001	0.004
Inform (t=2)	<0.001	<0.001	1.847	0.065	
Environmental					
Intercept	0.224	0.123	1.753	0.080	<0.001
Inform (t=1)	0.003	0.005	0.676	0.499	
Intercept	0.112	0.142	0.791	0.429	0.003
Inform (t=2)	0.010	0.006	1.704	0.088	
Financial					
Intercept	12071712	4443774	2.717	0.007	0.850
Involve (t=3)	7619822	1002129	7.604	**<0.001**	
Intercept	15698800	4830559	3.250	0.001	0.530

Involve (t=4)	6196229	1283219	4.829	**<0.001**	
Intercept	15813799	5500547	2.875	0.004	0.590
Involve (t=5)	6966598	1938341	3.594	**<0.001**	
Social					
Intercept	0.035	0.006	5.505	<0.001	0.003
Involve (t=3)	0.003	0.002	1.352	0.176	
Intercept	0.035	0.007	5.233	<0.001	0.004
Involve (t=4)	0.003	0.002	1.303	0.193	
Intercept	0.037	0.007	5.048	<0.001	0.002
Involve (t=5)	0.003	0.003	1.185	0.237	
Environmental					
Intercept	0.311	0.120	2.586	0.010	<0.001
Involve (t=3)	-0.021	0.036	-0.570	0.569	
Intercept	0.258	0.085	3.037	0.002	<0.001
Involve (t=4)	-0.012	0.024	-0.500	0.617	
Intercept	0.257	0.095	2.699	0.007	0.001
Involve (t=5)	-0.016	0.034	-0.485	0.628	

Legend: B – Regression Estimate. SE – Standard Error. Z – Z Value. R^2 – Determination Coefficient.

5.6 Estimation of hypothesis 3

H3: *The combination of the level and extent of stakeholder engagement is positively associated with improving the organization's performance over time.*

In table 20, we study the relationship between corporate performance (financial, social and environmental) and engagement. We observe positive significant relationships between corporate social and financial performance ($p<0.05$) and engagement. Corporate environmental performance do not have a significant relationship with engagement ($p>0.05$).

Table 20 - Panel models for Corporate Performance and Engagement (Total)

Corporate Performance	B	SE	Z	P-value	R^2
Financial					
Intercept	5536096.0	4153169.0	1.300	0.180	0.480
Engagement	299917.0	37713.0	8.000	**<0.001**	
Social					
Intercept	0.028	0.007	4.019	<0.001	0.080
Engagement	0.0003	<0.001	3.143	**0.002**	
Environmental					
Intercept	0.321	0.116	2.770	0.006	<0.001
Engagement	-0.001	0.001	-0.607	0.544	

Legend: B – Regression Estimate. SE – Standard Error. Z – Z Value. R^2 – Determination Coefficient.

Another explanatory hypothesis for stakeholder engagement and for improving the organization's performance over time, could consider the impact on short-term performance (t + 1, t + 2) and long-term performance (t + 3, t + 4, t + 5). For this reason, new estimation models have been carried out.

In table 21, we study the relationship between corporate performance (financial, social and environmental) and engagement in short-term (t=1 or 2) and long-term (t =3, 4, or 5). We observe positive significant relationship between corporate financial performance in short-term and long-term ($p<0.05$). For corporate social performance, we observe positive significant relationship until in delays 1, 2 and 3 ($p<0.05$). In delays 4 and 5, no significant relationship was observed. For corporate environmental performance no significant relationship with engagement is observed in short-term, however, in long-term delays 3 and 5, we observed positive significant relationship.

Table 21 - Panel models for Corporate Performance and Engagement (Total) in short-term and long-term

Corporate Performance	B	SE	Z	P-value	R^2
Financial					
Intercept	7018897	4562429	1.538	0.124	0.370
Engagement (t=1)	294767	46450	6.346	**<0.001**	
Intercept	7013115	4978482	1.410	0.160	0.360
Engagement (t=2)	308335	55118	5.590	**<0.001**	
Intercept	1253032	5744879	0.220	0.830	0.510
Engagement (t=3)	430420	74650	5.770	**<0.001**	
Intercept	3567117	6728907	0.530	0.600	0.452
Engagement (t=4)	414267	96645	4.290	**<0.001**	
Intercept	1423774	9593737	0.150	0.880	0.360
Engagement (t=5)	481364	162081	2.970	**0.003**	
Social					
Intercept	0.024	0.008	3.155	0.002	0.100
Engagement (t=1)	<0.001	<0.001	3.262	**0.001**	
Intercept	0.020	0.010	2.240	0.025	0.100
Engagement (t=2)	<0.001	<0.001	2.920	**0.003**	
Intercept	0.020	0.010	1.980	0.047	0.080
Engagement (t=3)	0.0004	<0.001	2.310	**0.021**	
Intercept	0.023	0.011	2.060	0.040	0.070
Engagement (t=4)	0.0003	<0.001	1.750	0.081	
Intercept	0.0279	0.013	2.190	0.030	0.080
Engagement (t=5)	0.0003	<0.001	1.260	0.210	
Environmental					
Intercept	0.256	0.134	1.906	0.057	<0.001
Engagement (t=1)	<0.001	0.002	0.270	0.800	
Intercept	0.145	0.150	0.940	0.350	0.002

Engagement (t=2)	0.003	<0.001	1.190	0.240	
Intercept	-0.054	0.187	-0.290	0.770	0.070
Engagement (t=3)	0.006	0.003	2.150	**0.032**	
Intercept	0.220	0.122	1.790	0.073	<0.001
Engagement (t=4)	<0.001	0.002	0.210	0.830	
Intercept	-0.053	0.163	-0.320	0.750	0.140
Engagement (t=5)	0.006	0.003	2.010	**0.046**	

Legend: B – Regression Estimate. SE – Standard Error. Z – Z Value. R^2 – Determination Coefficient.

5.7 Mediation analysis of hypothesis 4

H4: *The characteristics of the organization have an influence on the relationship between stakeholder engagement and the organization's performance*

In table 22, we analyzed the relationship between Engagement levels and Corporate Performances mediated by Report Maturity. Only direct effects could be stablished between Involve to Financial, Inform and Response to Social, and Inform to Environmental. No mediation could be stablished.

Table 22 - Mediation analysis for relation between Corporate Performance and Engagement level mediated by Report Maturity

	Corporate Performance		
	Financial (log_{10})	Social	Enviromental
Report Maturity			
Inform			
Indirect Effect (p-value)	-0.002423 (0.970)	-0.000080 (0.980)	-0.000713 (0.940)
Direct Effect (p-value)	0.000288 (0.950)	0.000676 (**0.010**)	0.005130 (**<0.001**)
Total Effect (p-value)	-0.002135 (1.000)	0.000597 (0.320)	0.004417 (0.570)
% Mediated (p-value)	1.134689 (0.260)	-0.133000 (0.670)	-0.161301 (0.480)
Type of Mediation	No-effect nonmediation	Direct-only nonmediation	Direct-only nonmediation
Response			
Indirect Effect (p-value)	-0.002280 (0.360)	0.0000632 (0.938)	0.000155 (0.840)
Direct Effect (p-value)	0.007820 (0.170)	0.001540 (**0.006**)	-0.007758 (0.310)
Total Effect (p-value)	0.005540 (0.770)	0.001610 (0.140)	-0.007603 (0.260)
% Mediated (p-value)	-0.410410 (0.850)	0.039400 (0.884)	-0.020378 (0.790)
Type of Mediation	No-effect nonmediation	Direct-only nonmediation	No-effect nonmediation
Involve			
Indirect Effect (p-value)	-0.005050 (0.770)	0.001077 (0.830)	0.036000 (0.260)
Direct Effect (p-value)	0.049320 (**<0.001**)	0.001636 (0.180)	-0.047200 (0.250)
Total Effect (p-value)	0.044270 (**0.030**)	0.002713 (0.290)	-0.011200 (0.980)
% Mediated (p-value)	-0.114000 (0.800)	0.397149 (0.540)	-3.222600 (0.920)

Type of Mediation	Direct-only nonmediation	No-effect nonmediation	No-effect nonmediation
Total			
Indirect Effect (p-value)	0.006680 (0.720)	-0.000137 (0.810)	-0.000663 (0.850)
Direct Effect (p-value)	0.004690 (**0.008**)	0.000674 (**<0.001**)	-0.002217 (0.490)
Total Effect (p-value)	0.011370 (0.464)	0.000537 (0.130)	-0.002880 (0.400)
% Mediated (p-value)	0.587360 (0.594)	-0.254825 (0.850)	0.230334 (0.680)
Type of Mediation	Direct-only nonmediation	Direct-only nonmediation	No-effect nonmediation

In table 23, we analyzed the relationship between Engagement levels and Corporate Performances mediated by Company Type. Only direct effects could be stablished between Response and Involve to Financial, Inform and Response to Social, and Inform to Environmental. No mediation could be stablished.

Table 23 - Mediation analysis for relation between Corporate Performance and Engagement level mediated by Company type.

	Corporate Performance		
	Financial ($\log_{10}$)	Social	Enviromental
Company Type			
Inform			
Indirect Effect (p-value)	-0.001491 (0.950)	0.000719 (0.996)	0.009103 (0.906)
Direct Effect (p-value)	0.002224 (0.520)	0.000702 (**0.002**)	0.006253 (**0.032**)
Total Effect (p-value)	0.000733 (0.720)	0.001421 (0.396)	0.015356 (0.568)
% Mediated (p-value)	-2.032847 (0.390)	0.505844 (0.608)	0.592787 (0.338)
Type of Mediation	No-effect nonmediation	Direct-only nonmediation	Direct-only nonmediation
Response			
Indirect Effect (p-value)	-0.005190 (0.984)	0.000473 (0.952)	0.010773 (0.980)
Direct Effect (p-value)	0.008690 (**0.032**)	0.000944 (**0.004**)	0.004492 (0.074)
Total Effect (p-value)	0.003500 (0.240)	0.001417 (0.206)	0.015265 (0.860)
% Mediated (p-value)	-1.482960 (0.752)	0.333688 (0.746)	0.705742 (0.172)
Type of Mediation	Direct-only nonmediation	Direct-only nonmediation	No-effect nonmediation
Involve			
Indirect Effect (p-value)	-0.001120 (0.960)	-0.000004 (0.950)	-0.019400 (0.840)
Direct Effect (p-value)	0.051260 (**<0.001**)	0.001660 (0.200)	-0.018100 (0.270)
Total Effect (p-value)	0.050140 (**<0.001**)	0.001650 (0.270)	-0.037500 (0.540)
% Mediated (p-value)	-0.022260 (0.960)	-0.002400 (0.860)	0.516600 (0.800)
Type of Mediation	Direct-only nonmediation	No-effect nonmediation	No-effect nonmediation
Total			
Indirect Effect (p-value)	0.001550 (0.964)	0.000098 (0.972)	0.003029 (0.966)
Direct Effect (p-value)	0.003520 (**0.006**)	0.000352 (**0.002**)	0.001576 (**0.042**)
Total Effect (p-value)	0.005070 (0.478)	0.000450 (0.532)	0.004605 (0.880)
% Mediated (p-value)	0.306580 (0.558)	0.217052 (0.492)	0.657779 (0.090)

Type of Mediation	Direct-only nonmediation	Direct-only nonmediation	Direct-only nonmediation

In table 24, we analyzed the relationship between Engagement levels and Corporate Performances mediated by Sector. Only direct effects could be stablished between Response and Involve to Financial, Inform and Response to Social, and Inform to Environmental. No mediation could be stablished.

Table 24 - Mediation analysis for relation between Corporate Performance and Engagement level mediated by Company Sector

	Corporate Performance		
	Financial (log_{10})	Social	Enviromental
Sector			
Inform			
Indirect Effect (p-value)	0.009410 (0.900)	-0.000535 (0.954)	0.012380 (0.990)
Direct Effect (p-value)	0.002820 (0.360)	0.000624 (**0.016**)	0.006430 (**0.030**)
Total Effect (p-value)	0.012230 (0.930)	0.000089 (0.560)	0.018820 (0.720)
% Mediated (p-value)	0.769660 (0.210)	-5.990000 (0.484)	0.658100 (0.280)
Type of Mediation	No-effect nonmediation	Direct-only nonmediation	Direct-only nonmediation
Response			
Indirect Effect (p-value)	0.008980 (0.968)	-0.001438 (0.996)	-0.000160 (0.950)
Direct Effect (p-value)	0.008700 (**0.016**)	0.000925 (**0.002**)	0.002260 (0.230)
Total Effect (p-value)	0.017680 (0.466)	-0.000513 (0.382)	0.002100 (0.810)
% Mediated (p-value)	0.508050 (0.502)	2.801859 (0.618)	-0.076250 (0.160)
Type of Mediation	Direct-only nonmediation	Direct-only nonmediation	No-effect nonmediation
Involve			
Indirect Effect (p-value)	-0.006760 (0.592)	0.000679 (0.900)	0.003370 (0.890)
Direct Effect (p-value)	0.047700 (**<0.001**)	0.001418 (0.240)	-0.018570 (0.260)
Total Effect (p-value)	0.040940 (**0.002**)	0.002098 (0.320)	-0.015200 (0.660)
% Mediated (p-value)	-0.165090 (0.590)	0.323869 (0.640)	-0.221730 (0.630)
Type of Mediation	Direct-only nonmediation	No-effect nonmediation	No-effect nonmediation
Total			
Indirect Effect (p-value)	-0.017220 (0.970)	-0.000031 (0.988)	0.027808 (0.960)
Direct Effect (p-value)	0.003540 (**<0.001**)	0.000338 (**0.004**)	0.001285 (0.056)
Total Effect (p-value)	-0.013680 (0.730)	0.000307 (0.690)	0.029093 (0.972)
% Mediated (p-value)	0.1259100 (0.240)	-0.102544 (0.298)	0.955829 (0.072)
Type of Mediation	Direct-only nonmediation	Direct-only nonmediation	No-effect nonmediation

In table 25, we analyzed the relationship between Engagement levels and Corporate Performances mediated by Assets. We observe no-effect nonmediation in relationships between Inform to Financial and Response to Environmental. We observed direct-only mediation in Inform to Financial and Environmental relationship.

Complementary mediation by assets occurs in relationships between Response and Involve to Financial accounting for 66.4% and 77.0% mediation respectively. Competitive mediation by Assets occurs in relationships between Response and Involve to Social accounting for -9.8% and 37% respectively. We observed indirect-only mediation by assets in Involve to environmental relationship.

Table 25 - Mediation analysis for relation between Corporate Performance and Engagement level mediated by Assets.

	Corporate Performance		
	Financial ($\log_{10}$)	Social	Environmental
Assets ($\log_{10}$)			
Inform			
Indirect Effect (p-value)	0.001529 (0.058)	-0.000017 (0.094)	0.000205 (0.212)
Direct Effect (p-value)	0.000742 (0.368)	0.000643 (**<0.001**)	0.006310 (**0.012**)
Total Effect (p-value)	0.002271 (**0.040**)	0.000627 (**<0.001**)	0.006520 (**0.010**)
% Mediated (p-value)	0.658591 (0.070)	-0.024800 (0.094)	0.026900 (0.218)
Type of Mediation	No-effect nonmediation	Direct-only nonmediation	Direct-only nonmediation
Response			
Indirect Effect (p-value)	0.005840 (**<0.001**)	-0.000097 (**0.002**)	0.000772 (0.200)
Direct Effect (p-value)	0.002970 (**<0.001**)	0.001057 (**<0.001**)	0.001738 (0.600)
Total Effect (p-value)	0.008810 (**<0.001**)	0.000960 (**<0.001**)	0.002510 (0.430)
% Mediated (p-value)	0.664840 (**<0.001**)	-0.098290 (**0.002**)	0.140455 (0.570)
Type of Mediation	Complementary mediation	Competitive mediation	No-effect nonmediation
Involve			
Indirect Effect (p-value)	0.040040 (**<0.001**)	-0.000669 (**0.006**)	0.008564 (**0.036**)
Direct Effect (p-value)	0.011990 (**0.004**)	0.002485 (**0.002**)	-0.024145 (0.056)
Total Effect (p-value)	0.052020 (**<0.001**)	0.001816 (**0.006**)	-0.015581 (0.202)
% Mediated (p-value)	0.769640 (**<0.001**)	-0.369699 (**0.012**)	-0.439899 (0.234)
Type of Mediation	Complementary mediation	Competitive mediation	Indirect-only mediation
Total			
Indirect Effect (p-value)	0.002301 (**<0.001**)	-0.000044 (**<0.001**)	0.000284 (0.240)
Direct Effect (p-value)	0.001221 (**<0.001**)	0.000384 (**<0.001**)	0.001022 (0.320)
Total Effect (p-value)	0.003522 (**<0.001**)	0.000340 (**<0.001**)	0.001305 (0.160)
% Mediated (p-value)	0.653280 (**<0.001**)	-0.130012 (**<0.001**)	0.166845 (0.380)
Type of Mediation	Complementary mediation	Competitive mediation	No-effect nonmediation

5.8 Summary of Results

The results derived from the database provide important insights with the confirmation and rejection of some of the hypothesized relationships. There is positive significance for most hypotheses. For example, the level of stakeholder engagement has a positive influence on the organization's performance over time. The hypothesis is supported for financial and social performance, CFP and CSP, at the three different engagement levels, although for environmental performance there is no support and significance. Concerning the extent of engagement practices for a greater number of stakeholders and the combination of the level of action and the number of stakeholder groups, there is also evidence and statistical support regarding the improvement in the social and financial performance of the organization. Table 26 shows a summary of the results of this research in light of its objectives and hypotheses.

Table 26 - Summary of results and hyphoteses

	Hyphoteses	Variables	P-value	Conclusion
H1	The level of stakeholder engagement has a positive influence on the organization's performance over time	Level 1,2,3 & Financial, Social and Environmental Performance	<0.001* <0.001* <0.001* 0.039* 0.002* 0.030* 0.669 0.571 0.623	Positive significant Supported CFP (Level 1,2,3) CSP (Level 1,2,3) CEP (not supported)
H2a	A Low level of stakeholder engagement has a positive relationship with the organization's short-term performance	Level 1 in short-term (t+1; t+2)	0.035* 0.025* 0.499	Supported CFP (t+1) CSP (t+1) CEP (not supported)
H2b	A high level of stakeholder engagement has a positive relationship with the organization's long-term performance	Level 3 in long-term (t+3, t+4, t+5)	<0.001* <0.001* <0.001* 0.176 0.193 0.237 0.569	Supported CFP (t+3, t+4, t+5) CSP / CEP (not supported)

	Hyphoteses	Variables	P-value	Conclusion
H3	The combination of the level and extent of stakeholder engagement is positively associated with improving the organization's performance over time.	Engagement Total (level + extension) & Financial, Social and Environmental Performance	<0.001* 0.002* 0.544	Supported CFP / CSP CEP (not supported)
H3a	Stakeholder Engagement in short-term performance (t + 1, t + 2)	Engagement (Total) in short-term (t=1 or 2)	<0.001* <0.001* 0.001* 0.003* 0.800 0.240	Supported CFP (t+1, t+2) CSP (t+1, t+2) CEP (not supported)
H3b	Stakeholder Engagement in Long-term performance (t + 3, t + 4, t + 5)	Engagement (Total) in long-term (t =3, 4, or 5).	<0.001* <0.001* 0.003* 0.021* 0.081 0.210 0.032* 0.830 0.046*	Supported CFP (t+3, t+4, t+5) CSP (t+3) CEP ((t+3, t+5)
H4	The company type influences the relationship between stakeholder engagement and the organization's performance	Corporate Performance and Engagement level mediated by Company type	0.001* 0.001* 0.016* 0.030* 0.016* 0.002* <0.001*	**Company Type** Level 1 and CSP / CEP Level 2 and CSP / CFP Level 3 and CFP Non-mediation
H4a	The sub-sector influences the relationship between stakeholder engagement and the organization's performance	Corporate Performance and Engagement level mediated by sector	0.002* 0.032* 0.032* 0.004* 0.001*	Direct effects only **Sector** Level 1 and CSP / CEP Level 2 and CSP Level 3 and CFP Non-mediation
H4b	The size of the organization influences the relationship between stakeholder engagement and the organization's performance	Corporate Performance and Engagement level mediated by Assets	0.040* <0.001* <0.001* 0.012* 0.010* 0.002* <0.001*	**Complementary mediation** by assets (L 2,3 & CFP) **Competitive mediation** (L 2,3 & CSP)

	Hyphoteses	Variables	P-value	Conclusion
			<0.001*	**Indirect mediation** (L3 & CEP)
H4c	The report maturity influences the relationship between stakeholder engagement and the organization's performance	Financial, Social, and Environmental and Engagement level mediated by Report Maturity	0.010 * <0.001* 0.006 * <0.001* 0.030 *	Direct effects only Level 1 and CSP / CEP Level 2 and CSP Level 3 and CFP Non-mediation

6. DISCUSSION

The discussion of the results involves the resumption of the research question, the objectives and hypotheses of the study. The discussion brought in this dissertation deals with the engagement between companies and stakeholders, whose intensity and amplitude are evaluated through a model of classification of engagement actions and at the end, their evaluation of a possible positive relationship with corporate performance, in their different compositions – financial, social and environmental. The research problem identified here emphasizes that it is not found in the literature an explanation about the levels of engagement and their influence with performance in different periods of time, thus having a relevance, theoretical and managerial, considering that it is important to know the best strategies and practices of stakeholders and how they relate to the best results of companies.

6.1 Discussion of the hypotheses and initial objectives

As an initial specific objective, to analyze the fundamentals of the stakeholder engagement concept, applying the construct design, it was possible to propose an appropriate definition that characterizes all the attributes indicated by the literature. This process of redefining the concept presented in the theoretical basis, took into account the guidelines pointed by Podsakoff, MacKenzie & Podsakoff (2016), namely 1) potential identify attributes of the concept by collecting a representative set of definitions; 2) organize the potential attributes by theme and identify any necessary and sufficient or shared ones; 3) develop a preliminary definition of the concept, and 4) refine the conceptual definition, as well as followed the recommendations of Suddaby (2010) for better clarity of the construct, referring to the definition of scope, relationships between other constructs and epistemological coherence.

The definition proposed and then used in this research understands that "*Stakeholder engagement can be seen as the firm's ability to establish collaborative relationships and dialogue with a wide variety of stakeholder's*". This definition is convergent to the concept of Greenwood (2007) that understands and engagement as a set of initiatives or practices that organizations develop to positively engage their stakeholders in their organizational activities as well as in the most recent contribution of Sulkowski et al., (2018) which states that the engagement of stakeholders can inspire and drive fundamental changes to the company's core operations, which will be beneficial for society and the environment.

The second specific objective of this study was to identify in the GRI sustainability reports the companies'' engagement actions, classifying them according to the engagement level (quality of actions) and the number of stakeholders served and most favored by each action (focus and extension). For this, the classification scale already validated by Stocker et al. (2020) was used with adaptations for systematization of content analysis via NVivo software. The engagement variables were collected in a total of 1,248 reports from 208 different companies in 49 countries.

Considering the volume of 12,179 observations found, comprising engagement actions at their different levels and for different stakeholder groups, it was observed that employees are generally the stakeholders that are most contemplated by level 1 and 2, low and medium engagement levels, in most reports/companies, while communities, shareholders and government are the primary receivers of high engagement actions. The group of stakeholder clients, assumes average positions in the distribution among stakeholders, being the supplier stakeholder one of the least priorities at all levels of engagement. The results show that of the total engagement actions identified, 45% (n=5.420) represent low-level engagement actions, while 42% (n=5,280) represent medium-level engagement actions, and only 12% (n=1,479) represent high-level engagement actions.

A common observation for the companies analyzed about the group of supplier stakeholders refers to the limitation of low-level engagement actions, i.e. a one-way dialogue, as can be seen in the excerpt taken from the Petrobras report – "*the engagement with suppliers and potential suppliers occurs mainly through the Supplier Channel and the Petronect portal, the latter being the platform used for operationalization of our contracts. This engagement is also through participation and promotion of technical events and awards for the best suppliers. Our Ombudsman also coordinates the fulfillment of complaints sent by suppliers and bidders*".

For Greenwood (2007), it is important to reflect on “the more the better” of stakeholder engagement, which according to the author belies the true complexity of the relationship between engagement and corporate responsibility. An example found in one of the companies analyzed reports that *"The selection of stakeholders that will be engaged occurs through prioritization based on the analysis of relevance and impact, in addition to the relationships already established with us. The criteria may differ according to each public of interest"* [excerpt from the Petrobras report (Brazil)]. In this sense, the argument is reinforced that the highest level of engagement will not always be the best for all stakeholder groups as well as for the action in which it is intended to be implemented. Engagement strategies need to be planned and structured in order to equate the expected level with the ideal number of stakeholders for the strategy to be truly effective.

The results presented in this study corroborate with other research that has focused on analyzing stakeholder engagement and assessing the level of information and communication, mainly using sustainability reports, such as that of Manetti (2011), Torelli, Balluchi, and Furlotti (2020), and Ruiz, Romero, and Fernandez-Feijoo (2020). Although there is a discourse on the importance of improving relationships, only in the last few years with the implementation of the materiality matrix have companies started to discuss and compare material issues of mutual interest to themselves and their stakeholders. Still for a large portion of companies, as presented here, the reports are limited to presenting the available communication channels without actually demonstrating that there are instruments and strategies aimed at greater involvement and participation of stakeholders in certain decision making.

The most evident approach is related to the materiality matrix, which is a tool that reflects on material themes for stakeholders, and the company’s actions, decisions, and planning in light of these claims or points of interest. The materiality matrix represents the result of a process of stakeholder participation in the organization’s decisions, so that, through greater transparency, information, and trust, the organization identifies the best strategies to satisfy the different groups, meet their needs, and jointly provide better results and shared values. As an example of this ongoing process, below is an excerpt taken from the sustainability report of one of the companies analyzed, which highlights the importance of this involvement process to define materiality.

“Our goal is to foster mutual understanding, trust and cooperation with stakeholder groups on sustainability topics. We interact with a variety of stakeholders through different mechanisms

such as community meetings, digital and social media, corporate publications and one-on-one discussions. Maintaining an open dialogue provides opportunities to listen to concerns, identify material issues, benchmark our performance and make strategic business decisions." – ExxonMobil (USA)

Stakeholder engagement is seen as an essential component of the publication of sustainability reports, and according to Ruiz, Romero, and Fernandez-Feijoo (2020), the prioritization of different stakeholders is evolving. According to Jabbour *et al.*, (2020) the stakeholder groups themselves can exert pressure and question the quality of information that is disclosed, as in the case of information for shareholders in these types of publications, which are admittedly more focused on stakeholders related to society and the environment. One characteristic presented by the authors that the results of this research corroborate is that different countries and company characteristics determine which groups of stakeholders will be better served, such as public companies, which need to attend shareholders as well communities, in contrast with state-owned companies, whose priorities differ; this is reflected in their sustainability reports. Below is an excerpt that refers to this company characteristic and reflects the strategic positioning of engagement.

"We recognize the significant responsibilities we have to our shareholders, neighbors, customers and communities as we find ways to bring affordable energy to the global market. For a company of our size and scope, building and maintaining relationships with a diverse group of stakeholders is critical. Regular stakeholder engagement helps us understand a variety of perspectives and improve our company's performance." – ExxonMobil (USA)

Regarding the improvement in the performance of the organization, the third specific objective of this research was to evaluate if the engagement strategies, with their different levels and attributes, are related and influence corporate performance over time. This objective has a direct relationship with the main hypotheses of the study that: H1 "The level of stakeholder engagement has a positive influence on the organization's performance over time" and H2 "The higher the engagement levels, the longer its effect on performance over time".

The results of the hypotheses allow us to say that in general the engagement of stakeholders has a positive relationship with social and financial performance, as confirmed by hypothesis 1, but when the levels of engagement are evaluated, the impact on performance has different effects in the short and long term. In the short term, low-level engagement actions had a significant relationship only with financial and social performance in t+1, i.e., low-level actions with short-term impact. On the other hand, the actions with a high level of engagement had a significant relationship only with the financial performance, either in the temporal lag of t+3, t+4 and t+5, with no significant relationship for social and environmental performance. This result contrasts with some theoretical propositions that deeper and more intense relationships would lead to greater value creation and with this a better social and environmental result for the company, even if the financial return, has been found.

Hypothesis 3 of the study referred to the combination of the level and extent of stakeholder engagement and its possible effect on performance improvement over time, and the results found again support the discourse that, in general, both financial and social performance have a significant relationship with engagement actions considering level and amplitude. Applying temporal lag to evaluate the construct of total engagement, the results were again revealing, when we encountered financial performance for both short and long term, and for social performance only in the short term. Only in this model, environmental performance showed a significant relationship between engagement and performance, having emerged in long-term temporal lag.

These results corroborate the findings already mentioned by Henisz, Dorobantu, & Nartey 2014) on the increase in financial gains and performance through the greater involvement of stakeholders in the business. Likewise, Pucheta-Martínez, Bel-Oms and Rodrigues (2020), found evidence that companies with engagement policies have a greater responsibility for environmental issues, but performance had a negative association between engagement and the level of environmental disclosures.

In the research model presented, mediation analysis was performed with the characteristics of organizations, such as the type of companies (public, private or state-owned), sub-sector (energy, electric utilities or oil and gas), report maturity and size, and the possible influence on the relationship between engagement and performance (H4). Although evidence of direct effects on the relationship was found, only the size of the companies, mediated by assets, showed significant results for mediation between engagement and performance, being complementary mediation for financial performance, that is, the direct and indirect effects were significant and point to the same direction, and competitive mediation for social performance, having had significant direct and indirect effects but pointing to opposite directions.

Garcia, Mendes-Da-Silva & Orsato (2017) classify companies in the energy sector as being environmentally sensitive companies due to their great socio-environmental impact, moral debates, political pressures and greater risk and possible environmental and social damage. For this reason, companies whose sector is sensitive to these themes, it is believed that both the social dissemination of information, stakeholder demand and environmental and social performance will be prioritized (Griffin & Mahon, 1997; Lin, Chang & Dang, 2015; Rodrigo, Duran & Arenas, 2016). Nevertheless, the results presented here do not confirm this argument, since environmental performance did little to appear in the model and social performance had positive results only in the short term, even though we did not test the causality and relationship between the performance constructs, in order to be able to contrast with the results of Garcia, Mendes-Da-Silva & Orsato (2017) who found negative profitability of the firm associated with environmental performance.

6.2 Application of the Stakeholder Engagement Matrix

The fourth and final specific objective of this study was to explore the engagement performance of companies in the stakeholder engagement matrix, given the combination between the different levels of engagement and the impact of the actions carried out for the different groups of stakeholders. Stocker et al. (2020) developed a stakeholder engagement matrix that is useful for analyzing the impact of stakeholder engagement, considering the different levels of engagement strategies and the extent of stakeholder coverage, considering a few or even several groups of stakeholders. As shown in Figure 7, the engagement matrix categorizes companies in different quadrants regarding the level and extent of stakeholder engagement, thus allowing an analysis of the total quality of engagement for each company, compared to the others.

Figure 7 - Stakeholder engagement strategies matrix

Engagement quality:
Stakeholder Engagement Level

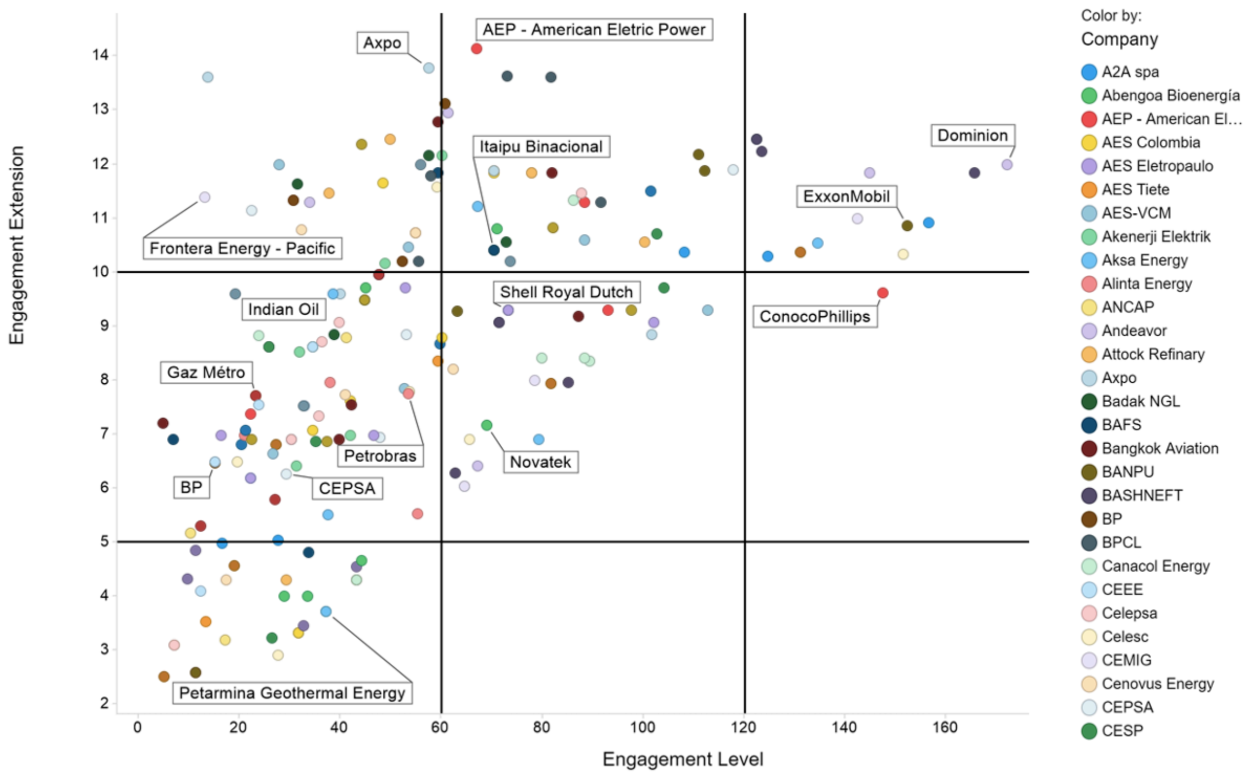
Engagement extension: number of stakeholders involved

	Level 1	**Level 2**	**Level 3**
High	Show-off	Investigator	Generous
Intermediate	Trumpeter	Curious	Malleable
Low	Insulated	Prudent	Focused

Source: Stocker et al., (2020).

The matrix presented in Figure 7 shows all the possible combinations of a high, intermediate, and low number of identified stakeholders (Yaxis) and the concentration of actions classified as engagement levels 1, 2, and 3. Such combinations were then divided into nine quadrants, as suggested by Stocker et al. (2020). We made the distribution of the companies analyzed in the engagement matrix, considering the average value of engagement levels and the average number of stakeholders served at each level of engagement. Thus, as illustrated in Figure 8, the 208 companies were distributed in the nine engagement quadrants.

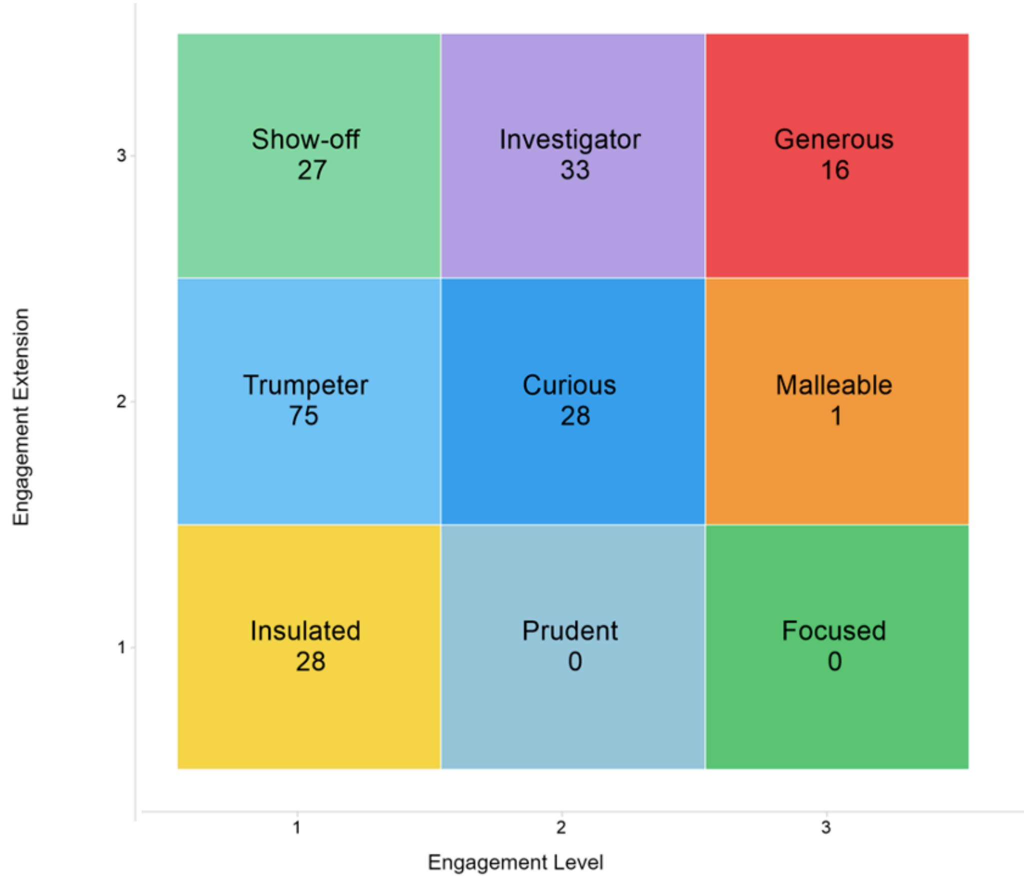
Figure 8 - Stakeholder engagement matrix – distribution of analyzed companies



According to the authors, the engagement matrix shows all possible combinations of a low and high number of identified stakeholders, called the extent of engagement (Y axis), and the concentration of actions classified as engagement levels 1, 2, and 3. The possible combinations are divided into nine quadrants. Each quadrant presents an average number of stakeholders served and the average composition of engagement actions. For example, observing quadrant 1 (“insulated”), in the lower left corner, there are companies that report a smaller number of stakeholders, mostly with low level engagement actions (level 1), a company identified in this quadrant, for example is Petarmina Geothermal Energy from Indonesia.

The opposite quadrant in the upper right corner is quadrant 9, entitled “generous,” which contains companies that identified a large number of stakeholders in their reports and most of whose engagement actions are level 3, that is, more frequently high-level engagement actions. The companies identified in this quadrant was ExxonMobil and Dominion, both from United States. Figure 9 illustrates the distribution in each quadrant of the companies analyzed.

Figure 9 - Stakeholder Engagement Matrix – representation of the companies analyzed in each quadrant



The identification of quadrants is related to the number of stakeholders served and the level of engagement actions, being Quadrant 1 for "insulated" when companies involve a limited number of stakeholders and with a lower level of engagement strategy; Quadrant 2 for "prudent" when companies still engage with few stakeholders but invest more in intermediate engagement steels; quadrant 3 to "focused" when engagement actions are high-level and with a limited number of stakeholders. Quadrant 4 "trumpeter" or propagandist, when companies involve an intermediate number of stakeholders, but with more actions of low engagement, quadrant with the highest proportion of companies analyzed. Quadrant 5 "curious" with intermediate engagement actions and for some stakeholder groups. Quadrant 6 "malleable" with high level of engagement actions but for an intermediate number of stakeholders. Quadrant 7 "Show-off" when companies involve many stakeholders and mostly with low-level engagement actions. Quadrant 8 "Researcher" when engagement actions are intermediate level and for a large number of stakeholders; and finally quadrant 9 "Generous" where companies involve a greater number of stakeholders at a high level of engagement.

In this example, as we illustrated in Figure 8, Dominion and ExxonMobil fit into quadrant 9 "generous" as they develop actions of various stakeholder groups and mostly high-level engagement actions, as seen in Appendix 1 and 2 and through the excerpt below.

In the process of identifying stakeholders and engagement of local communities, customers, shareholders and employees - "*Our goal is to ensure that people's voices are heard. We hold public meetings and meet with stakeholder groups to hear ideas and understand needs. We are developing new processes to help us coordinate with groups whose voices are not always heard. We use surveys and ongoing interactions to evaluate the effectiveness of our engagement, and continue to evaluate our approaches for opportunities to improve it*" – Dominion Energy – USA

For ExxonMobil, it was evidenced that "*We engage a variety of stakeholders on climate change issues — including policymakers, investors, consumers, nongovernmental organizations (NGOs), academics and the public to actively advocate for responsible policies that would be effective in addressing the risks of climate change. We offer data and policy analysis on proposals and engage in constructive debate. For example, we have had hundreds of meetings with policymakers around the world to share our views on carbon pricing policy*".

The assumption presented by the engagement matrix, does not recommend that all stakeholders should be engaged at the same time and with the same intensity, but rather their expectations and demands must be identified and from this, the engagement actions must be planned and implemented (Friedman & Miles, 2006; Greenwood, 2007). In this same direction, for Gupta, Crilly and Greckhamer (2020), the engagement strategies associated with high performance may vary according to the local institutional context and the characteristics of the company, as well as in the choice of which groups to prioritize in the engagement policies and in what way and intensity engage them in the business.

7. CONCLUDING REMARKS

For this study, the main goal was to analyze the different engagement strategies and understand how different nuances of stakeholder-organization relationships affect the quality of this engagement and its impact on firm performance over time. The research interest here is to understand how the relationship between stakeholders and the organization takes place and the effect it has on engagement, performance and substantially on the social dissemination of information.

The impetus behind the use of the term "stakeholder engagement" in stakeholder theory emphasizes that it is no longer sufficient for companies to simply communicate with their stakeholders. In addition to thinking about what actions companies should or should not take to meet moral standards, one should look at the relationships that companies promote with their stakeholders and the joint benefits of this interaction, a phenomenon that this work tried to capture and redefine (Greenwood, 2007; Lim & Greenwood, 2017; Sulkowski, Edwards, & Freeman, 2018; Stocker et al., 2020).

The growing complexity in the business environment has been leding companies to develop best practices and strategies for engaging with stakeholders to achieve global sustainable development. These practices are sources of competitive advantages and promote the value creation for stakeholders and society (Harrison, Freeman, & Abreu, 2015; Griffin, Youm & Vivari, 2019; Barney & Harrison, 2020). Stakeholder engagement, therefore, can be seen as a part of the strategy for improving relationships with stakeholders, which go beyond transactional interactions, and could help companies to drive long-term relationships and better results and performance over time (Gupta, Crilly, & Greckhamer, 2020; Stocker et al., 2020).

According to the Stakeholder Engagement Strategies model applied here, the quality of engagement is built by differentiating into three types of relationships and levels of engagement with stakeholders and how companies allocate these actions to each group of stakeholders (Stocker et al., 2020). The three levels of engagement encompass stakeholder information strategies (level 1) with actions designed to identify and inform stakeholders; Level 2 - stakeholder response strategy - with actions to consult interests and support stakeholder demands, and Level 3 -

stakeholder envolvement strategy - with actions aimed at establishing partnerships and collaboration for the involvement of stakeholders in projects (Stocker et al., 2020), having its effect evaluated in the short and long term, as well as in the performance over time.

Regarding the level of engagement and the effect on the performance of companies, the debate is highlighted that both value creation and other predecessor factors are not restricted to understanding the demands and needs of stakeholders but presenting different responses to each group of stakeholders and engaging them in different ways, and this combination can generate better results for the organization, as evidenced by the results of this research.

7.1 Challenge to Existing Argumentation in Stakeholder Theory Literature

A current challenge of stakeholder theory lies in explaining how organizations create value for and with stakeholders in such a way that the output of this process is beneficial to both parties. The state of the art of stakeholder theory resides in a growing line of research developing an alternative explanation for how managers define their value creation strategies. This line of thought argues that the way relationships are built and maintained, whether through justice, reciprocity, or power, can better explain managers' decisions regarding stakeholder interests. Such thinking assumes that this type of relationship obtains greater engagement and consequent value creation for the company by the stakeholders (Bosse et al., 2009; Harrison & Bosse, 2013; Garcia-Castro & Aguilera, 2015, Tantalo & Priem, 2016; Sulkowski, Edwards, & Freeman, 2018).

According to Davila and Molina (2017) the assumption taken for granted in the organization-stakeholder relationship can limit our understanding of how the relationships between the parties are formed and how they evolve over time. We know little about what takes place in the relationship with stakeholders, which is essential to understanding how value is created for various stakeholders (Freeman et al., 2017). To fill this gap, this thesis explores the phenomenon of the relationship with stakeholders, involving different engagement strategies and practices and the relationship with organizational performance. The research problem, encapsulated in the aforementioned theoretical discussions, involves the lack of empirical evidence on stakeholder engagement and the construction of theoretical arguments that allow for the establishment and testing of hypotheses regarding engagement strategies, reciprocity in stakeholder relationships, and their relationship with value creation and organizational performance.

This research discusses and deepens assumptions that already exist in the stakeholders literature. In an exercise to identify and challenge these assumptions, what one might want to do in this thesis is to develop alternative assumptions or scenarios for the research to have a potential impact on the literature. With this in mind, the point of reflection concerns the problematization through which this research has been developed – in a causation approach. In other words, we seek to understand the relationship between stakeholder engagement practices and relationships, where the output of this process is the corporate performance, as a proxy for value creation by the company.

Considering the causation perspectives in strategy research (Durand & Vaara, 2009), the present study is positioned in the field of positivism, whose research objectives seek empirical validation, revealing statistical associations that justify the hypothesized relationships. However, new counterfactual arguments can be used to give more validity or falsifiability to these hypothesized causal relationships.

Applying counter-factual reasoning and imagining a new way of questioning and a different scenario for the phenomenon studied, what would happen if stakeholder engagement strategies (relationship A) were not created and applied by the organization? Would relationships with stakeholders be maintained with the same "centrality" and reciprocity? And would the creation of joint value still happen at the same intensity?

In contrast to this, as also discussed in the literature, if the value created is not distributed fairly to stakeholders, and the organization does not achieve the expected performance (relationship B), will the stakeholders lose interest and no longer participate in and relate to the organization? Rather than considering stakeholder engagement as the antecedent of the value creation process, would hypothesizing that the antecedent to be evaluated is the firm's values and strategic orientation, and building relationships based on fairness and trust, result in greater value creation, therefore engaging stakeholders more with the firm's purpose? These are some reflections that the study brings.

7.2 Contributions

The research project intends to elucidate key issues in strategy studies relating to practices, strategies, and actions that generate better company results and performance. This study is relevant and contributes to the literature for two reasons. Colquitt and Zapata-Phelan (2007) argue that the study can present a high theoretical contribution by examining a previously unexplored relationship or process and basic predictions with existing models, on the theory building as well as by testing the existing theory.

The first theoretical contribution is given by the originality of the application of the method, by systematizing the proposed scale of stakeholder engagement and thus proposing an operationalization of the engagement constructs identified here, allowing for greater replicability of the study and being able to achieve greater comparability of the results.

The second point of the originality of the study, which relates to a theoretical contribution to the field of study of stakeholders and CSR, is due to the originality of the results and implications of the research. As already mentioned, there is no explanation in the literature about the phenomenon of relationships through engagement practices and performance, especially when it comes to evaluating whether low and high engagement actions have an impact in the short and long term on company performance.

The results of this research are revealing and contrast with some of the theoretical arguments about financial, social, and environmental gains and returns while emphasizing that although performance over time is positive when the different levels are evaluated and their effect on the short and In the long term, the most intense relationships with a high level of engagement do not have a positive relationship with social performance in the long term, but in the short term. Different from the environmental performance, which showed little relation in the tested models. Despite this, the results reinforce the hypothesis that engagement actions have a strong significance and relationship to financial performance, both in the short and long term, as well as for actions with low and high levels of engagement.

Potential managerial and practical impact

The potential managerial impact of this study is permeated through two questions - What will the manager be able to use from this study? If applied the knowledge mentioned here, what would be the impact on management?

The instrument applied in this study to identify the variables of engagement and content analysis, allows managers responsible for preparing the relationship policies with stakeholders or those responsible for the communication and dissemination of socio-environmental information, to reflect on what actions and at which levels of engagement they could apply considering your business specificity and interests of their stakeholder groups.

As highlighted by Torelli, Balluchi, and Furlotti (2020), the need to transmit information to all those involved and interested in the production process has led to companies being concerned with collecting and measuring their socio-environmental investments and the resulting income. Auditors, shareholders and others interested in sustainability reports, can benefit from this study by understanding and differentiating the quality of the actions reported in the report, especially as they affect engagement with stakeholders.

The study also presents a managerial contribution, identifying the strategies and actions that over time have had a greater impact on the company's performance, improving the management of the companies and addressing the interests of its stakeholders. This project aimed to analyze and assess the impact of business strategies aimed at engaging stakeholders and to measure the social, financial and environmental performance of the companies analyzed over time.

The identification of patterns in the processes of adoption and implementation of engagement practices, such as those of corporate responsibility, can help managers to manage these processes more ably (Vidal, Kozak & Hansen, 2015). With this, it provides empirical evidence to support managers and professionals who serve the various audiences involved in the business, such as employees, customers, suppliers, community, government, shareholders, among others.

Potential social impact

In an attempt to position the contribution and the social impact of this dissertation, the interlocution of the theme with studies that try to solve society's challenges and complex social issues that, as mentioned by international entities such as the United Nations, are necessary for including alignment with the sustainable development goals (SDGs) and facing the shareholder primacy, for example.

There is an urgent need for studies that analyze the interactions between multiple actors to achieve a better and sustainable world. This emphasizes the possible social impact of the project, as it details actions of engagement with stakeholders in companies with a strong presence in society, such as those of power generation, electricity, oil and gas services, and also with high risks to the environment and for climate change.

Recent debates in academia, about the impact of business research, especially here in business and management studies, refer to the fact that explaining business improvements is insufficient to address the challenges and problems that society has been facing. It is believed that projects that produce guidelines for decision-makers, whether public or from private companies, can make the business more fair, ethical and useful for society and, its stakeholders.

7.3 Research Limitations

Despite the theoretical contributions and practical implications resulting from this dissertation, it is highlighted that the study has some limitations. The first limitation relates to the quantitative content analysis technique. Despite the progress of such techniques in evaluating information in sustainability reports and integrated reports, they have a limited scope to assess the quality of reports and determine the degree of their integrity in relation to international guidelines. There is a movement, for example through GRI, to develop clearer and more precise guidelines to assist companies in preparing reports, always respecting the principles of responsibility, comparability, transparency, precision, and clarity. However, in many cases, even if companies follow the structure and guidelines, the content of the reports can present some confusion in the presentation of indicators and qualitative information, which can lead to a reduction in their credibility and objectivity.

The second limitation relates to the low R-squared value and explanatory power of the model variables. The explanatory power of a regressive model is given by the R-squared value, which represents the percentage of variance of the dependent variable captured by the explanatory variables. Even though the R-squared value was low for some estimates, it is still possible to draw important conclusions about how changes in the values of the predictor variables are associated with changes in the value of the response variable, mainly due to statistically significant values.

It should be noted that the purpose of the tests is not to explain the variation in performance, for example ROA for financial performance, but to identify whether there is a relationship between stakeholder engagement and financial performance. Therefore, the findings verify that stakeholder engagement is positively related to different types of performance, with different impacts over time.

7.4 Recommendations for Future Studies

For future research, some points that are related to the research findings will be listed, as well as possibilities for new studies in light of the gap and premises of the theory of stakeholders, which were fully or tangentially addressed in this research. First, in relation to the research context and the data analyzed, it is believed that an investigation and analysis of influences over companies of other sectors and industries in different contexts could provide an important contribution to identifying which variables drive stakeholder engagement strategies.

Recently, prominent authors have shown increasing interest, mainly with regard to companies' engagement actions with their stakeholders and a possible relationship with the achievement of sustainable competitive advantage. This theme is addressed in the works of Freeman (2010), Noland and Phillips (2010), Harrison and Bosse (2013), Garcia-Castro and Aguilera (2015), Sulkowski, Edwards, and Freeman (2018) and Kujala and Sachs (2019). This theme has already been discussed in studies of corporate social responsibility (CSR), but it still lacks studies focusing on the organization's strategy and the role that stakeholders have in the elaboration, communication, and evaluation of these practices (Melo, Souza, & Yaryd, 2018; Zollo, 2018; Stocker et al., 2020).

According to Civera and Freeman (2019), there is an emerging call to discuss the relationships, cooperation, and importance of the continuous engagement of stakeholders for the joint creation of value. In this topic, it is worth mentioning studies on materiality for stakeholders, involvement and participation in the decision-making process, and nuances of engagement practices in different contexts, for example institutional, social, and economic.

Regarding the influence of stakeholder management on organizational performance, as discussed in this study, the relationship between corporate social performance (CSP) and corporate financial performance (CFP) has been widely discussed and evaluated in different contexts, using different mediating variables and moderators (Barakat et al., 2019; Pereira et al., 2020); however, the inclusion of stakeholder management in the performance measurement model has not yet been widely tested. There is also an avenue for more in-depth discussions on the influence of stakeholders on performance, organizational skills arising from the relationship with stakeholders, as well as assessment of performance proxies that may be more closely related to stakeholder management, namely ESG (environmental, social, and governance) indicators.

We must also consider the importance of understanding, in future studies, the interconnection between and influence of multiple stakeholders, which can affect both the quality of engagement and performance. The interaction between multiple stakeholders is a phenomenon that has aroused interest in recent years, especially in light of the greater dialogue between business and society, global supply chain and business collective action. However, the research on the topic still lacks empirical studies that analyze the phenomenon of stakeholder networks and their contribution to the advancement of the theory.

It is worth highlighting for this topic the emergence of models of joint value creation and co-creation of value from the perspective of multi-stakeholder network cooperation (Bridoux & Stoelhorst, 2016); and the need to review global value chain and engagement models for multinational companies and with subsidiaries in different regions, regarding the influence of stakeholders at the international level and multi-stakeholder governance (Humphrey, Todeva, Armando, & Giglio, 2019).

Thus, it is important for future studies to evaluate the relational gains resulting from the engagement of stakeholders, understanding that the individuals in networks develop collective behaviors of social participation. Such studies could also identify negative impacts on the organizational reputation derived from the behavior of stakeholders in networks, such as boycotts and the disclosure of negative information.

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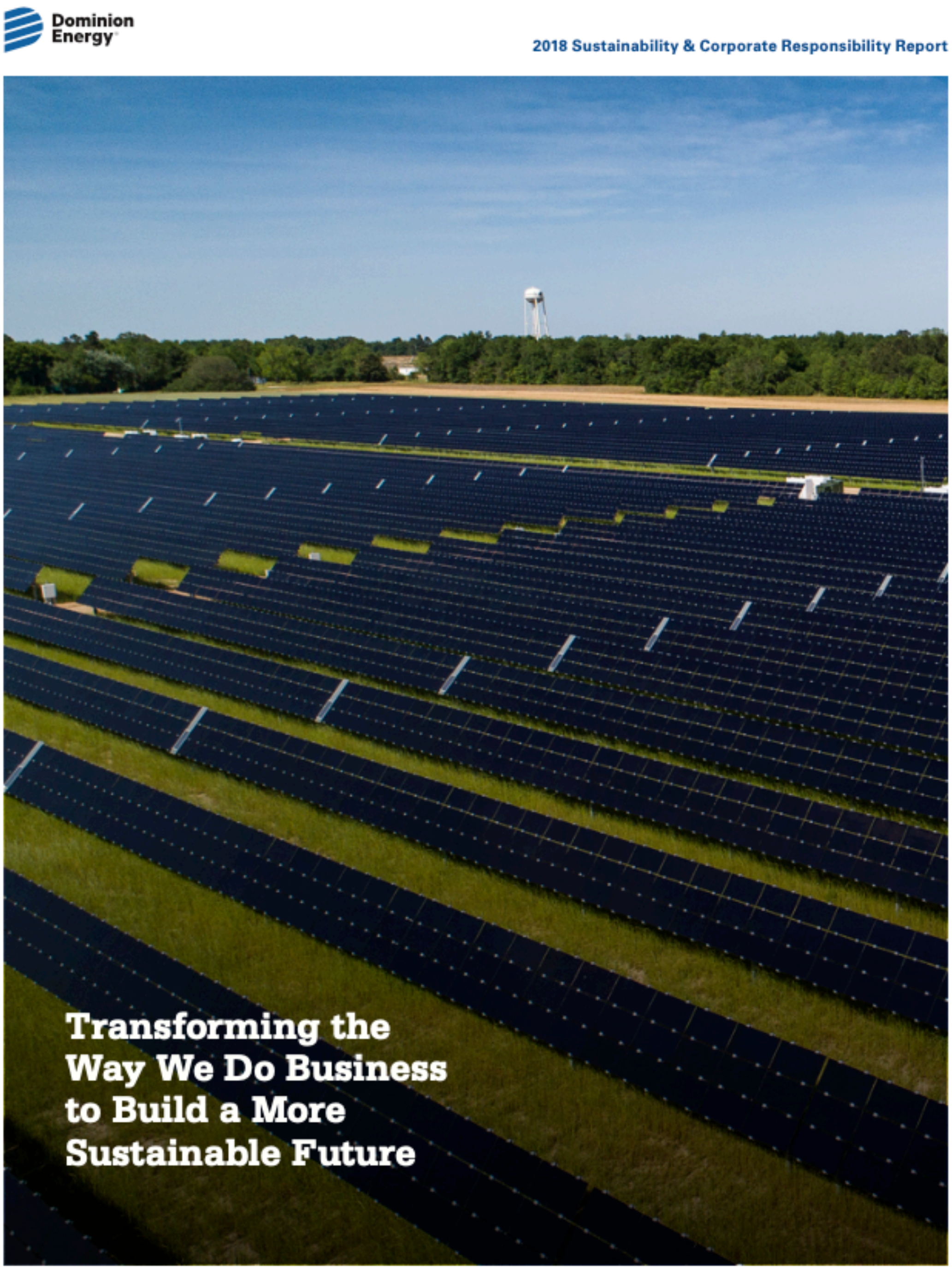
Appendix 1 – Dominion Energy (USA) – GRI Report

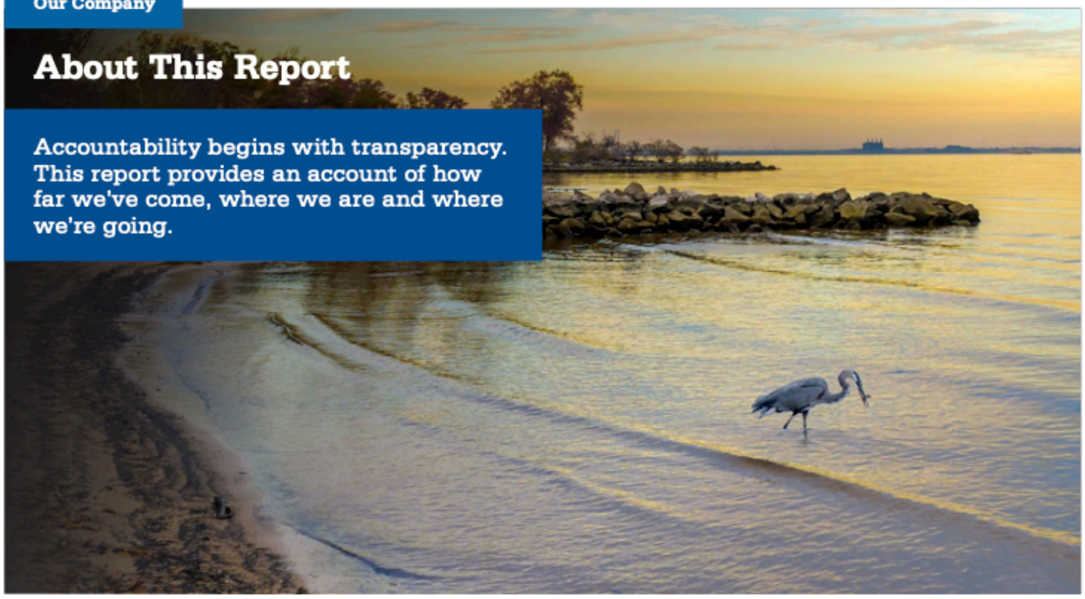


Dominion Energy

Our Company

About This Report

Accountability begins with transparency. This report provides an account of how far we've come, where we are and where we're going.



This report covers the activities of Dominion Energy and its charitable foundation for calendar year 2018. Where relevant or helpful for context, it includes information about previous years.

The report has been prepared in accordance with the Core Option of the Global Reporting Initiative (GRI) Standards. As defined by those standards, material topics are those that "reflect the … organization's significant economic, environmental, and social impacts; or substantively influence the assessments and decisions of stakeholders." Elsewhere in the report, we included an index cross-referencing the topics covered in this report with the relevant GRI standards. In the interest of even greater transparency, we have mapped disclosures in this report to two other important sets of standards: the United Nations Sustainable Development Goals and Sustainability Accounting Standards Board standards.

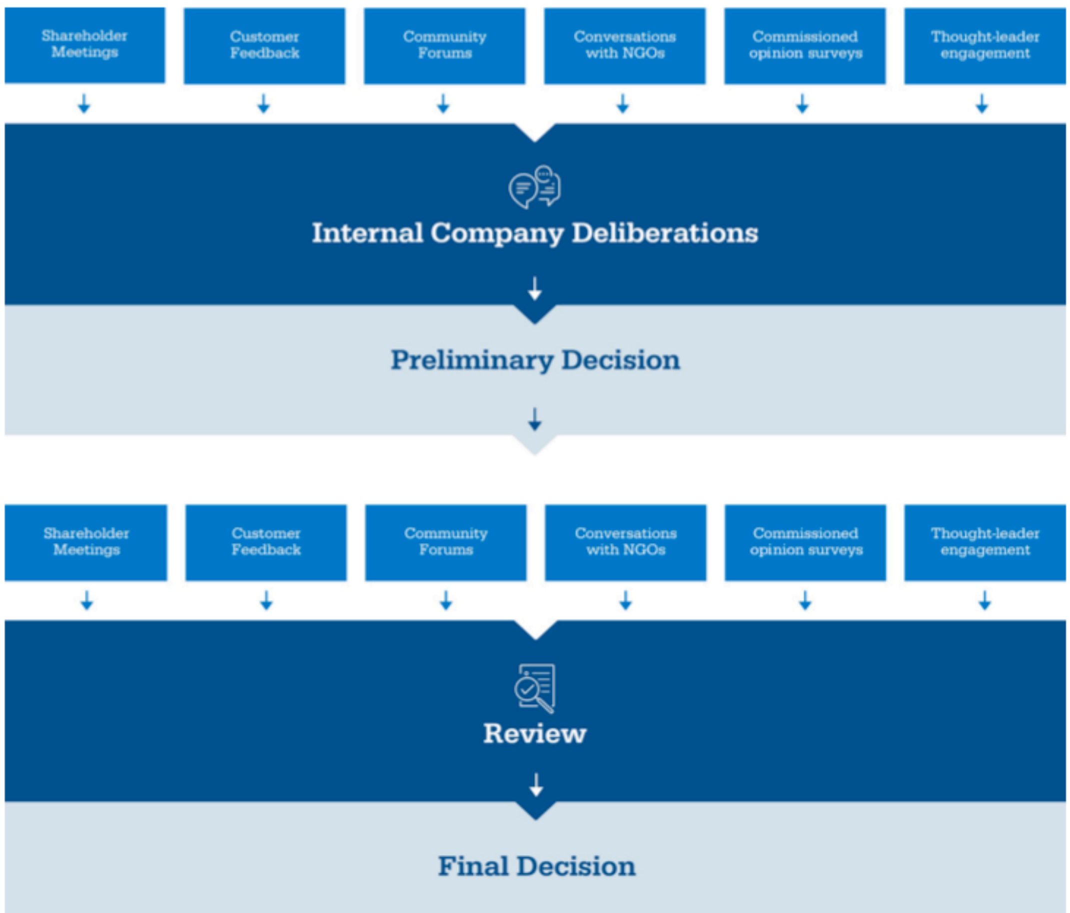
The company conducts business in 18 states (see: About Us), and those states define the physical boundary of the company's impacts, with two exceptions: (1) carbon dioxide and methane emissions, which contribute to global climate change, and (2) our customers, suppliers and investors, which are spread across the country (and, in certain cases, the world).

While we have relied on third-party input to help compile the report, the report has not been third-party assured. However, the greenhouse-gas emissions in this report have been third-party assured by an independent consultant.

Our stakeholder engagement process is nearly continuous. We pursue feedback through a wide variety of means, including meetings, calls and written correspondence with investors; scrutiny of external documents that convey stakeholder perspectives; internal and external surveys; monitoring of media coverage; interviews with employees who regularly interact with external stakeholders; public hearings; town halls; and more. In 2018 alone, we had more than 600 meetings with nonprofit groups. (For more detail, see the Community Engagement section.) This stakeholder engagement informs our materiality assessment, which is carried out by a cross-functional team within the company.

About This Report

Our Stakeholder Engagement Process



Our Company

About This Report / GRI Index

Disclosure	Description	Report Location
Stakeholder Engagement		
102-40	Provide a list of stakeholder groups engaged by the organization.	About This Report; throughout the report
102-40 OG	Stakeholder Engagement—Indigenous Peoples inclusion	Engaging Communities
102-41	Report the percentage of total employees covered by collective bargaining agreements.	Retaining Talent
102-42	Report the basis for identification and selection of stakeholders with whom to engage.	About This Report; throughout the report
102-43	Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	About This Report; Engaging Communities
102-43 OG	Stakeholder Engagement—Indigenous Peoples Engagement and effectiveness of actions taken by company to address issues	Engaging Communities
102-44	Report the key topics and concerns that have been raised through stakeholder engagement, including: • How the organization has responded to those key topics and concerns, including through its reporting; ans • The stakeholder groups that raised each of the key topics and concerns.	Engaging Communities

Dominion Energy

Our Company

About This Report / Stakeholder Engagement

WHAT YOU SHOULD KNOW

How we connect with others to gather their input.

Communities

TYPE OF ENGAGEMENT	FREQUENCY	DOMINION ENERGY APPROACH
Community Partner meetings	Periodically as needed	Community Development Energy Reliability & Affordability Safety Cleaner Air Clean Water Reducing Waste Habitat & Wildlife Protection Clean Energy Diversity & Security Investing in Infrastructure
Nonprofits, Chambers, Associations, Clubs; attending and supporting events & programs	Regularly throughout the year	
Volunteering (Board service, events, programs)	Regularly throughout the year	
Education partners for recruitment; education programs (Board service, events, programs)	Regularly throughout the year	
Diversity partners for recruitment of employees and business partners (Board service, events, programs)	Regularly throughout the year	
Open houses associated with a project, event, programs	Periodically as needed	

Customers

TYPE OF ENGAGEMENT	FREQUENCY
Dominion Energy Website	Regularly throughout the year
Dominion Energy Social Media (Twitter, Facebook)	Regularly throughout the year
Billing statements and customer newsletter	Monthly
Customer feedback through call center	Continuously
Key customer meetings	Regularly
Customer focus groups	Periodically
Press releases and local media	As needed

DOMINION ENERGY APPROACH

Community Development
Energy Reliability & Affordability
Safety
Cleaner Air
Clean Water
Reducing Waste
Habitat & Wildlife Protection
Clean Energy Diversity & Security
Investing in Infrastructure

Employees

TYPE OF ENGAGEMENT	FREQUENCY
Leadership updates	Throughout the year
Company intranet	Updated regularly
Training and development	Regular
Employee Resource Groups	Meet regularly, hold community events
Engagement survey	Once every two years
Volunteerism	Throughout the year
Putting Our Energy to Work events	Throughout the year
Performance reviews	Quarterly

DOMINION ENERGY APPROACH

Safety
Community Development
Attracting Talent
Developing Talent
Retaining Talent
Cleaner Air
Clean Water
Reducing Waste
Habitat & Wildlife Protection
Innovation
Governance & Risk Oversight
Values, Ethics & Compliance

Facility Neighbors

TYPE OF ENGAGEMENT	FREQUENCY
Community meetings associated with specific facility updates, projects or events	Periodically as needed
Letters to neighbors concerning projects and updates	Periodically as needed
Local media, press releases	Periodically as needed
Volunteer events	Throughout the year

DOMINION ENERGY APPROACH

Safety
Energy Reliability & Affordability
Investing in Infrastructure
Community Development
Cleaner Air
Clean Water
Reducing Waste
Habitat & Wildlife Protection

Governments

TYPE OF ENGAGEMENT	FREQUENCY
Attendance at meetings and hearings	Throughout the year
Press releases and local media	As needed
Volunteer events	Throughout the year
Community meetings	Periodically as needed

DOMINION ENERGY APPROACH

Energy Reliability & Affordability
Community Development
Community Engagement
Cleaner Air
Clean Water
Reducing Waste
Habitat & Wildlife Protection
Clean Energy Diversity & Security
Investing in Infrastructure
Safety
Values, Ethics & Compliance

Shareholders

TYPE OF ENGAGEMENT	FREQUENCY
Investor calls and meetings	Throughout the year
Investor Relations website	Updated regularly
ESG website and disclosures	Updated regularly
Presentations at investor meetings, earnings calls	Quarterly and throughout the year
Press releases	As needed

DOMINION ENERGY APPROACH

About Us
Governance & Risk Oversight
Values, Ethics & Compliance
Investing in Infrastructure
Clean Energy Diversity & Security
Safety
Cleaner Air
Clean Water
Waste Management
Habitat & Wildlife Protection
Innovation
Attracting Talent
Developing Talent
Retaining Talent

Dominion Energy

Serving Customers & Communities

Engaging Communities

Engagement is a two-way street. For Dominion Energy, that means not only being transparent about our actions, but also actively listening to what others think. So we seek out dialogue with our customers, investors and other stakeholders and invite them to share their input.

WHAT YOU SHOULD KNOW

We listen to our stakeholders and consider their perspectives in our decisions.

In 2018, we enhanced our focus on Environmental Justice by adopting a formal policy with regard to it.

We work directly with Native American tribes whenever our activities intersect with their interests.

Fostering Dialogue

We work hard to limit impacts on the environment, landowners and communities. To make sure we better understand our stakeholders' perspectives, we hold public meetings with the communities in which we operate, reach out to a wide range of groups, and are implementing new processes that will help us coordinate with those whose voices are not always heard.

Engaging Communities / Strategy and Process

WHAT YOU SHOULD KNOW

We pursue engagement by hosting town halls and other community events, convening stakeholder conferences, conducting surveys and meeting face-to-face with a broad array of outside interests, from local-government officials to industry watchdogs.

Dominion Energy

Employee Experience

Retaining Talent / Employee Engagement

WHAT YOU SHOULD KNOW

We don't presume to know what our employees want — we ask them. We take action based on their input.

Seeking Input

In 2018, we conducted the most recent of our biannual, company-wide workforce surveys. Nearly half of all employees participated. We use the results to refine our policies and operations — for example, by making senior leadership available for more face-to-face interaction with front-line personnel.

Among the company's strengths, according to the 2018 survey, are leadership's concern for the safety of workers, employees' understanding of the company's core values, and respect and collaboration among colleagues. Employees also thought the company could do more to promote a culture of innovation and agility.

Thanks to employee feedback and input, we have made improvements such as upgraded meeting-room technology, expanded flex scheduling, and dedicated quiet rooms.

In 2018, partly in response to such employee feedback, we also created a new position: Vice President — Employee Engagement & Development. That person works with our human-resources department and our business units to improve leadership and talent management, enhance career development, strengthen employee engagement and performance, and refine how the company attends to employee concerns.

Retaining Talent / Employee Health and Wellness

WHAT YOU SHOULD KNOW

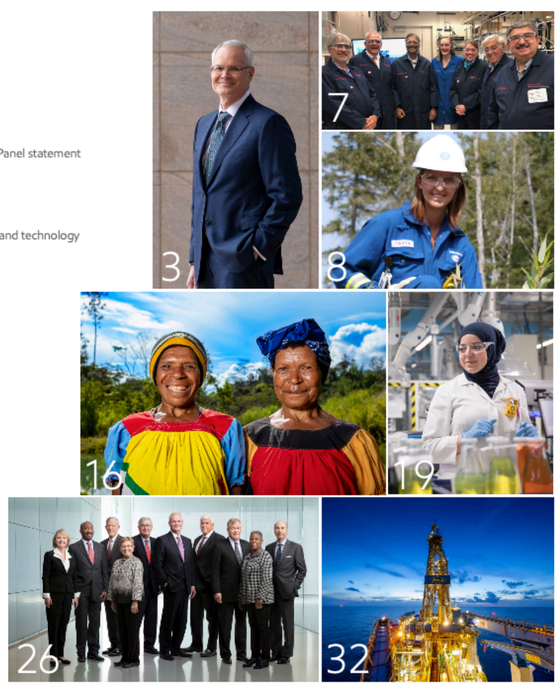
The most essential part of any company is its people. Dominion Energy wants to help every employee lead a long and healthy life.

Promoting Wellness

Healthy employees make for a healthy company, so Dominion Energy offers a robust health-benefits package and promotes a culture of wellness through free health screenings, on-site fitness centers at many locations and programs such as "Well On Your Way." We provide employees and their dependents a wide range of wellness offerings and health-management services to encourage preventive care and to support work/life balance.

Appendix 2 – ExxonMobil (USA) GRI Report

TABLE OF CONTENTS



Addressing the United Nations Sustainable Development Goals

The United Nations adopted the Sustainable Development Goals (SDGs) to achieve significant progress on global economic, social and environmental challenges by 2030. Although directed at governments, the private sector and civil society play an important role in support of governments' national plans. ExxonMobil contributes to certain aspects of all 17 SDGs. In this report, we feature eight SDGs to which ExxonMobil is making significant contributions. We include the most relevant SDG icons (below) that correspond with each section of this *2018 Sustainability Report Highlights* at the top of each section page.

Outlooks, projections, estimates, goals, descriptions of business and community plans, research efforts and other statements of future events or conditions in this report are forward-looking statements. Actual future results, including future earnings, returns to investors and other areas of financial and operating performance; future global energy supply, demand and mix; future distributions; proved and other reserves; reserve and resource additions and recoveries; the future effectiveness of safety, health, environmental and other sustainability risk and impact management processes; efficiency gains; and the timing and impact of future technologies could differ materially due to factors, including:

- Changes in demand, supply and pricing for oil and natural gas and other factors affecting the oil, gas, petroleum and petrochemical industries;
- Political and regulatory factors, including war, security disturbances, national tax policies, trade policies, environmental policies and the impact of international accords and treaties;
- Changes in population size, purchasing power and consumer preferences;
- The timely completion of current exploration, development and construction projects;
- Actions of competitors, including the development of competing technologies;
- The outcome of current and future research efforts and the ability to bring new technologies to scale on a cost-competitive basis;
- Technical and operating factors; and
- Other factors discussed in the document, Factors Affecting Future Results.

Exxon Mobil Corporation has numerous affiliates, with many names including ExxonMobil, Exxon, Mobil, Esso and XTO Energy. For convenience and simplicity, those terms (and terms such as corporation, company, our, we and its) are sometimes used as abbreviated references to specific affiliates or affiliate groups. ExxonMobil is a publicly traded company. The New York Stock Exchange is the principal exchange on which Exxon Mobil Corporation common stock (symbol XOM) is traded. References to the resources, resource base, and recoverable resources, along with similar terms refer to the total remaining estimated quantities of oil and natural gas that are expected to be ultimately recoverable. ExxonMobil refers to new discoveries and acquisitions of discovered resources as resource additions. The resource base includes quantities of oil and natural gas classified as proved reserves as well as quantities that are not yet classified as proved reserves, but that are expected to be ultimately recoverable. The term "resource base" is not intended to correspond to SEC definitions such as "probable" or "possible" reserves. The term "in-place" refers to those quantities of oil and natural gas estimated to be contained in known accumulations and includes recoverable and unrecoverable amounts. "Potential" resource amounts are not currently included in the resource base. The term "project" as used in this release can refer to a variety of different activities and does not necessarily have the same meaning as in any government payment transparency reports.

STAKEHOLDER ENGAGEMENT

Our goal is to foster mutual understanding, trust and cooperation with stakeholder groups on sustainability topics. We interact with a variety of stakeholders via community meetings, digital and social media, corporate publications and one-on-one discussions. Maintaining an open dialogue provides opportunities to listen to concerns, discuss approaches and share plans. Across stakeholder groups, from communities and nongovernmental organizations to employees and shareholders, we continue to see broad interest in our environmental, social and governance performance. The table below highlights our key stakeholder groups, their typical areas of interest and ExxonMobil's engagement approach.

STAKEHOLDER GROUPS	COMMON AREAS OF INTEREST		ENGAGEMENT APPROACH
COMMUNITIES	Air emissions Community investments Economic development Education Employment opportunities	Environmental performance Grievance management Human rights Operational impacts	Communicate with local residents in areas where we operate through direct correspondence and group meetings Dedicate personnel responsible for community engagement as well as receiving, tracking, analyzing and responding to potential community concerns Establish channels for communities to provide input or seek information Use social media platforms to share project updates with a diverse audience Contributed $211 million to communities around the world in 2018
CUSTOMERS	Developing innovative products and technology Safety	Supply chain management Sustainability and environmental issues	Collaborate across industries to identify customer solutions to sustainability issues Cultivate an open dialogue with our customers and provide education on the market-based approach to sustainable solutions Provide customer service numbers and support marketing teams in responding to customer questions
EMPLOYEES	Benefits Diversity and inclusion Health and wellness	Professional development Safety Workplace security	Support the professional development of our more than 71,000 employees globally Invest in worker health by providing voluntary health programs Share feedback and raise topics of interest through managers, internal surveys, company forums and a confidential hotline Support employee-led resource groups that foster a culture of diversity and inclusion Use social media platforms to share information
GOVERNMENTS	Energy supply and security Environmental performance Climate change Employment opportunities Ethics and integrity Impact assessments Local supplier development	Safety Taxes and other revenue sources Human rights Health and wellness Diversity and inclusion Education	Engage host governments to maintain the safety and security of operations while respecting human rights Monitor and participate in transparency initiatives in countries where we operate Meet with representatives and leaders to provide information and insights on policies that may affect our business Work to support responsible economic, energy and environmental policies and help identify solutions
NONGOVERNMENTAL ORGANIZATIONS	Climate change Environmental performance Human rights Social issues	Transparency Economic development Health Education	Collaborate on technical projects of mutual interest Conduct one-on-one meetings Engage in corporate and foundation philanthropic activities with nongovernmental organizations Participate in conference events to exchange views, information and expertise Participate in multi-stakeholder initiatives to enable progress on key policy issues Partner with grantees to improve health, education and job opportunities in local communities
SHAREHOLDERS	Board composition Business performance Climate change Environmental performance	Governance practices Policy engagement Risk management	Engage directly with shareholders to understand input and feedback, including shareholder proposals Disseminate information to our shareholders through SEC filings, investor days, investor presentations and other publications Enable engagement between non-employee directors and shareholders, and facilitate communication from any interested party to non-employee directors via our corporate governance page Host annual shareholder meetings to share information on company highlights and answer questions from shareholders
SUPPLIERS	Local business opportunities Local supplier development Operational integrity Safety Environmental performance	Expectations for suppliers Diversity and inclusion Education Human rights	Hold forums with suppliers to provide information on our safety, environmental and human rights practices Participate in organizations dedicated to building local supplier capabilities Share our supplier, vendor and contractor expectations Conduct regular supplier audits and anti-corruption due diligence in relevant countries Support U.S. businesses owned by traditionally underrepresented groups through ExxonMobil's U.S. supplier diversity database and supplier forums

Sustainability

Report

Dec. 20, 2019

Stakeholder engagement

Our goal is to foster mutual understanding, trust and cooperation with stakeholder groups on sustainability topics. We interact with a variety of stakeholders via community meetings, digital and social media, corporate publications and one-on-one discussions. Maintaining an open dialogue provides opportunities to listen to concerns, discuss approaches and share plans.

Across stakeholder groups, from communities and nongovernmental organizations to employees and shareholders, we continue to see broad interest in our environmental, social and governance performance. The table below highlights our key stakeholder groups, their typical areas of interest and ExxonMobil's engagement approach.

Stakeholder groups	Common areas of interest	Engagement approach
Communities	▪ Air emissions ▪ Community investments ▪ Economic development ▪ Education ▪ Employment opportunities ▪ Environmental performance ▪ Grievance management ▪ Human rights ▪ Operational impacts	▪ Communicate with local residents in areas where we operate through direct correspondence and group meetings ▪ Dedicate personnel responsible for community engagement as well as receiving, tracking, analyzing and responding to potential community concerns ▪ Establish channels for communities to provide input or seek information ▪ Use social media platforms to share project updates with a diverse audience ▪ Contributed $211 million to communities around the world in 2018

Customers	▪ Developing innovative products and technology ▪ Safety ▪ Supply chain management ▪ Sustainability and environmental issues	▪ Collaborate across industries to identify customer solutions to sustainability issues ▪ Cultivate an open dialogue with our customers and provide education on the market-based approach to sustainable solutions ▪ Provide **customer service numbers** and support marketing teams in responding to customer questions
Employees	▪ Benefits ▪ Diversity and inclusion ▪ Health and wellness ▪ Professional development ▪ Safety ▪ Workplace security	▪ Support the professional development of our more than 71,000 employees globally ▪ Invest in worker health by providing voluntary health programs ▪ Share feedback and raise topics of interest through managers, internal surveys, company forums and a confidential hotline ▪ Support employee-led resource groups that foster a culture of diversity and inclusion ▪ Use social media platforms to share information

Governments	▪ Energy supply and security ▪ Environmental performance ▪ Climate change ▪ Employment opportunities ▪ Ethics and integrity ▪ Impact assessments ▪ Local supplier development ▪ Safety ▪ Taxes and other revenue sources ▪ Human rights ▪ Health and wellness ▪ Diversity and inclusion ▪ Education	▪ Engage host governments to maintain the safety and security of operations while respecting human rights ▪ Monitor and participate in transparency initiatives in countries where we operate ▪ Meet with representatives and leaders to provide information and insights on policies that may affect our business ▪ Work to support responsible economic, energy and environmental policies and help identify solutions
Nongovernmental organizations	▪ Climate change ▪ Environmental performance ▪ Human rights ▪ Social issues ▪ Transparency ▪ Economic development ▪ Health ▪ Education	▪ Collaborate on technical projects of mutual interest ▪ Conduct one-on-one meetings ▪ Engage in corporate and foundation philanthropic activities with nongovernmental organizations ▪ Participate in conference events to exchange views, information and expertise ▪ Participate in multi-stakeholder initiatives to enable progress on key policy issues ▪ Partner with grantees to improve health, education and job opportunities in local communities

Shareholders	- Board composition - Business performance - Climate change - Environmental performance - Governance practices - Policy engagement - Risk management	- Engage directly with shareholders to understand input and feedback, including shareholder proposals - Disseminate information to our shareholders through SEC filings, investor days, investor presentations and other publications - Enable engagement between non-employee directors and shareholders, and facilitate communication from any interested party to non-employee directors via our **corporate governance page** - Host annual shareholder meetings to share information on company highlights and answer questions from shareholders
Suppliers	- Local business opportunities - Local supplier development - Operational integrity - Safety - Environmental performance - Expectations for suppliers - Diversity and inclusion - Education - Human rights	- Hold forums with suppliers to provide information on our safety, environmental and human rights practices - Participate in organizations dedicated to building local supplier capabilities - Share our supplier, vendor and contractor expectations - Conduct regular supplier audits and anti-corruption due diligence in relevant countries - Support U.S. businesses owned by traditionally underrepresented groups through ExxonMobil's U.S. supplier diversity database and supplier forums

Local fishermen in East Java, Indonesia. In 2016, ExxonMobil Cepu Limited helped build a jetty and fish monitoring station to support the local fishing community.

4 Community engagement, human rights and strategic investments

Managing community engagement

Understanding and addressing the interests of communities where we operate is critical to maintaining a sustainable business. ExxonMobil's multifaceted approach to engaging with communities helps us create and sustain productive relationships with the communities near our areas of operation. We work in communities all over the world, each with their own unique cultures, needs and sensitivities. In all cases, we maintain our corporate-wide commitment to responsibly managing our social and environmental impacts, upholding respect for human rights and making social investments by tailoring our engagement efforts to individual communities. In this chapter, we focus on three key socioeconomic elements: human rights, community relations and strategic investments.

Workforce engagement

ExxonMobil maintains a culture of diversity and inclusion, upholds disciplined employment practices, and offers robust training and benefit programs that promote employee retention. We cultivate a diverse workforce of highly talented individuals who are dedicated to integrity and high-quality work. We support voluntary, employee-led networks that foster a culture of diversity and inclusion by offering development programs, community service opportunities and mentoring. For information on ExxonMobil's employment practices, see our employment practices webpage.

Employment practices

Within ExxonMobil's executive employee population, 18 percent are women. This represents an increase of 50 percent over the past decade. This increase, in part, is a result of continued focus on early identification and focused development of high-performing female employees. Additionally, approximately 15 percent of our U.S. executives are minorities, an increase of 79 percent over the past 10 years, facilitated by a consistent focus on minority management development. For information on our local hiring practices outside the United States, see page 38.

To increase the representation of minorities and female employees in our U.S. operations, we implement a wide range of education programs and recruiting activities intended to reach a diverse pool of highly qualified candidates. In 2016, we provided 38 technical scholarships to minorities across the United States. Additionally, 43 percent of engineering hires in the United States were women, higher than the U.S. percentage of female engineering students. For additional information on the percentage of women and minorities by position in the United States, see the performance data table.

As a global organization, the diversity and inclusion of thought, skill, knowledge and culture across our company facilitates innovation and is a key competitive advantage. As demand for science, technology, engineering and mathematics workers continues to increase worldwide, we support immigration policies that will help U.S. companies fill their high-skilled workforce needs.

ExxonMobil offers robust corporate and technical training programs designed to engage employees in professional development. Our major business units spent $108 million on training employees during 2016. Of that, we directed 76 percent toward professional and technical training. In 2016, more than 4,600 employees at various levels of the company participated in ExxonMobil's leadership development training programs, of which 32 percent were women and 58 percent were employees from outside the United States. For additional information on training expenditures and the number of employees trained, please see the performance data table.

We retain and develop our diverse workforce by providing an environment where personal and professional growth is encouraged and career objectives are developed and achieved. For additional information on ExxonMobil's employment policies, as well as our approach to retention and engagement, please see our workforce engagement webpage.

Workforce engagement

"I was fortunate to be involved as a founding member of the Asian Connection for Excellence (ACE) chapter at the Chemical Company headquarters in Houston. When I relocated to Beaumont, Texas, I realized the need to establish a chapter in Beaumont as well. Understanding inclusion and diversity is one of the most important aspects in conducting business. ExxonMobil recognizes the importance of having an open dialogue about cultural differences and how that drives better business results."

Matthew Lim
ExxonMobil Chemical Company aromatics technical supervisor

Up Close:
Promoting Zika awareness and preparedness among ExxonMobil employees

We believe proactive communication and awareness is critical to limiting the consequences of outbreaks on worker health, productivity and business operations. In 2016, the World Health Organization declared Zika a Public Health Emergency of International Concern.

We established a corporate working group to educate our workers on prevention, preparedness and response techniques across our global worksites. Preparedness strategies included mitigation in active Zika areas, traveler notification of potential risks, and employee access to referrals for Zika diagnosis and treatment. Additionally, ExxonMobil took proactive steps at all potentially impacted sites to establish mosquito control plans and to identify a site Zika contact in worksites located in high-risk areas. In 2016, 40 employees and contractors were impacted by the Zika virus. We will continue to enhance our education and awareness efforts to help reduce this number.

Malick Diara, Amanda Brown, Johnnie Richard and Cathy Simmons from ExxonMobil's medicine and occupational health group host an information session about Zika prevention.

Appendix 3 – CEPSA (Spain) GRI Report

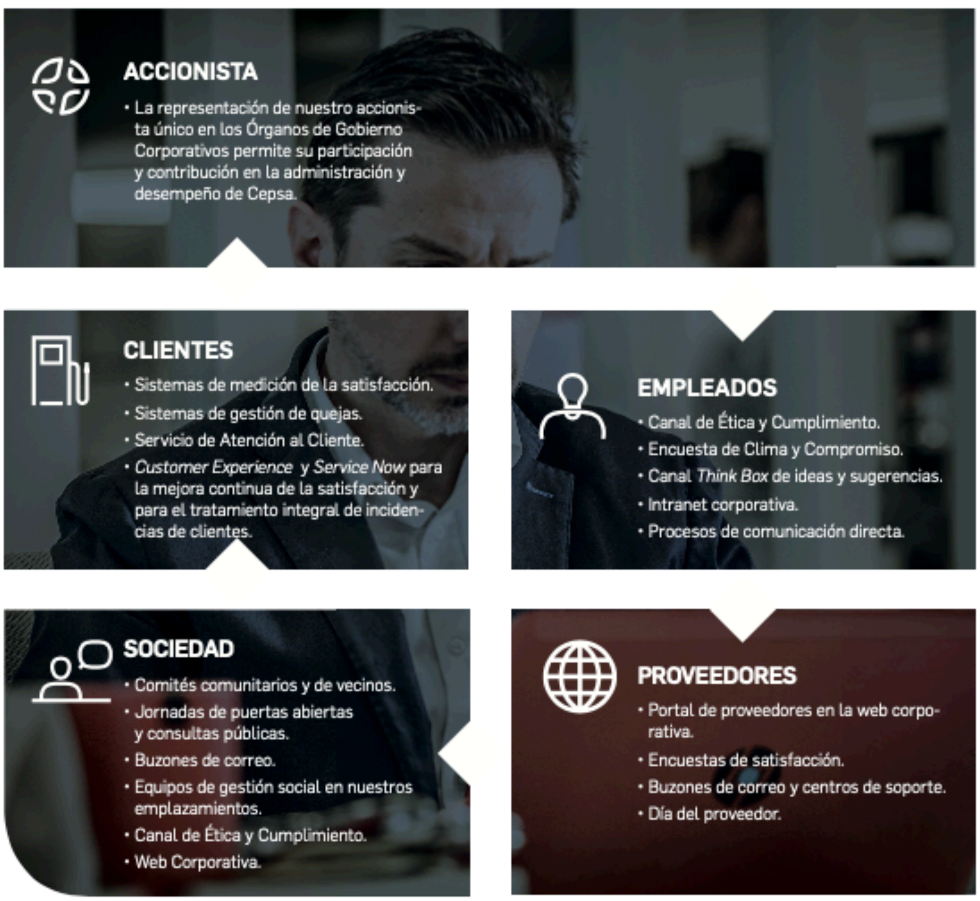
Indicador	Descripción	Pacto Mundial
Participación de los grupos de interés		
102-40	Lista de grupos de interés	
102-41	Acuerdos de negociación colectiva	Principio 1 Principio 3
102-42	Identificación y selección de grupos de interés	
102-43	Enfoque para la participación de los grupos de interés	
102-44	Temas y preocupaciones clave mencionados	

5.1 NUESTRO ENFOQUE DE GESTIÓN

En Cepsa trabajamos día a día por mantener una relación de confianza, sólida y transparente con nuestros grupos de interés, generando valor para cada uno de ellos y permitiéndonos conseguir nuestros objetivos estratégicos a largo plazo por medio del cumplimiento de sus expectativas.

Nuestra Política de Relación con los grupos de interés y su Sistema de Gestión nos permite identificar, clasificar, priorizar y gestionar cada una de nuestras partes interesadas de manera capilar pudiendo conocer sus expectativas, necesidades, y propuestas.

Ejemplos de canales de comunicación de nuestros grupos de interés:



Appendix 4 – Celepsa (Peru) GRI Report

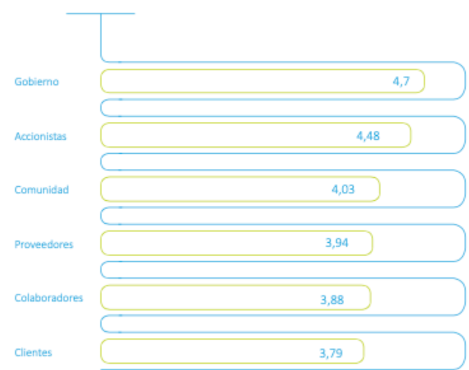
(102-46, 102-50, 102-51, 102-52, 102-54, 102-56)

Este informe se ha elaborado de conformidad con la opción Esencial de los Estándares GRI. Brinda información correspondiente al año 2018, y es emitido anualmente desde el 2012. Su contenido no ha sido verificado por un auditor externo.

La cobertura del presente reporte incluye la oficina administrativa y la Central Hidroeléctrica El Platanal.

Grupos de interés
(102-40, 102-42)

El mapeo de grupos de interés, con representantes de las diferentes áreas de la empresa, fue realizado a finales de 2017. Ello implicó su identificación, clasificación y priorización desde el punto de vista de la compañía. Los resultados fueron los siguientes:



Durante el año 2018, Celepsa trabajó con dichos grupos de interés identificados en el año anterior. De acuerdo con los talleres internos realizados, y tal como se refleja en el gráfico anterior, los grupos de interés más relevantes identificados para la compañía son: el gobierno (específicamente, los organismos reguladores y fiscalizadores), los accionistas y las comunidades aledañas a la C.H. El Platanal. A continuación, siguen los proveedores de mantenimiento de la planta, mientras que el medio ambiente se encuentra inmerso en la categoría de comunidades y en los asuntos de la misma operación de la planta.

La siguiente tabla muestra la clasificación y priorización de los grupos de interés, así como el relacionamiento y espacios de comunicación que la compañía mantiene con cada uno de ellos. (102-40, 102-43)

Grupos de interés	Frecuencia	Medio de comunicación
Gobierno	Según requerimiento	✓ Cartas formales ✓ Inspecciones
Directores	Mensual	✓ Reuniones de Directorio
Comunidad	Diaria	✓ Personal
	A solicitud de la comunidad	✓ Cartas ✓ Reuniones de asamblea comunal ✓ Otros espacios formales con la comunidad
Proveedores	Según necesidad	✓ Visitas técnicas ✓ Llamadas telefónicas ✓ Correo electrónico
Colaboradores	Permanente	✓ Intranet (Yammer)
Clientes	Según necesidad	✓ Llamadas telefónicas ✓ Correo electrónico

MATERIALIDAD

Durante 2018 hemos realizado una actualización de nuestro análisis de materialidad de cara a definir los temas relevantes para nuestro reporte y el enfoque de gestión global de nuestra compañía. Así, tomando de base el estudio de materialidad realizado en 2017, hemos llevado a cabo el análisis de los aspectos internos relevantes para nuestros grupos de interés, el estudio de aspectos externos que son relevantes para nuestra compañía, el sector y las partes interesadas, y, por último, un examen acerca de las tendencias normativas relacionadas con la Responsabilidad Corporativa y su comunicación.

El resultado obtenido tras la actualización del estudio ha sido una relación de temas materiales seleccionados por su afección tanto interna como externa, incorporando las características del entorno cambiante en el que nos desenvolvemos y la irrupción de nuevos temas a considerar para su gestión inminente:

COBERTURA DE LOS TEMAS MATERIALES

Impacto dentro de la organización

Impacto fuera de la organización

BLOQUES DEL PLAN DIRECTOR DE RESPONSABILIDAD CORPORATIVA

1. Gobierno Corporativo
2. Ética y cumplimiento
3. Transparencia
4. Crecimiento sostenible
5. Innovación
6. Seguridad
7. Talento
8. Medio Ambiente
9. Cadena de suministro
10. Bienestar social

OBJETIVOS DE DESARROLLO SOSTENIBLE 2019

1. Fin de la pobreza
2. Hambre cero
3. Salud y bienestar
4. Educación de calidad
5. Igualdad de género
6. Agua limpia y saneamiento
7. Energía asequible y no contaminante
8. Trabajo decente y crecimiento económico
9. Industria, innovación e infraestructura
10. Reducción de las desigualdades
11. Ciudades y comunidades sostenibles
12. Producción y consumo responsable
13. Acción por el clima
14. Vida submarina
15. Vida de ecosistemas terrestres
16. Paz, justicia e instituciones sólidas
17. Alianzas para lograr los objetivos

Appendix 5 – Celesc (Brazil) GRI Report

ENGAJAMENTO COM PARTES INTERESSADAS

[102-21, 102-40, 102-42, 102-43]

O engajamento com nossas partes interessadas se dá de acordo com a Política de Responsabilidade Socioambiental do Grupo Celesc, que prevê o constante diálogo entre a empresa e seus públicos, com o objetivo de construir planos de ação que atendam às expectativas de todos os envolvidos, favorecendo, assim, negócios justos e sustentáveis.

No processo de implantação da NBR 16001 foram mapeados os públicos de interesse da organização e, ao longo do ano, diversas ações de engajamento foram realizadas com todos eles. Os públicos estratégicos da Companhia e os respectivos responsáveis pelo relacionamento dentro da Celesc são:

PODER PÚBLICO: Inclui órgãos políticos e jurídicos (Governo do Estado, Alesc, deputados federais e senadores catarinenses, Ministério Público, Tribunal de Contas, IMA, IBAMA etc.).

AGENTES INTRASETORIAIS: Inclui órgãos relacionados ao Setor Elétrico (ANEEL, ONS, CCEE, EPE, ABRADEE, COGE etc.).

MERCADO FINANCEIRO: Inclui investidores, analistas, instituições bancárias.

PÚBLICO INTERNO: Estrutura de governança + empregados + sindicatos.

AGENTES SOCIAIS: Entidades civis associadas à área de Responsabilidade Social.

SOCIEDADE: APINE, Conccel, FIESC, FECAM etc.

CLIENTES: Inclui clientes da Distribuidora, da Comercialização e da Geração, incluindo geradores e cooperativas.

STAKEHOLDER ENGAGEMENT

[102-21, 102-40, 102-42, 102-43]

Stakeholder engagement occurs in accordance with the Celesc Group's Socio-Environmental Responsibility Policy, which foresees constant dialogue between the company and its stakeholders in order to create action plans that meet the expectations of all involved, and therefore favor fair and sustainable business.

In the NBR 16001 implementation process the organization's stakeholders were mapped and a number of engagement actions were carried out with all of them during the year. The Company's strategic stakeholders and the respective responsibilities for relationships with them at Celesc are as follows:

PUBLIC AUTHORITIES/GOVERNMENT: Includes political and juridical bodies (State Government, Alesc, federal deputies and senators from Santa Catarina, Public Prosecutor, Court of Auditors, IMA, IBAMA, etc.).

ELECTRIC SECTOR AGENTS: Includes organs related to the Electric Sector (ANEEL, ONS, CCEE, EPE, ABRADEE, COGE etc.).

FINANCIAL MARKET: Includes investors, analysts and banking institutions.

INTERNAL PUBLIC: Governance structure + employees + unions.

SOCIAL AGENTS: Civil entities associated with the area of Social Responsibility.

SOCIETY: APINE, Conccel, FIESC, FECAM etc.

CUSTOMERS: Includes Distribution, Trading and Generation customers, including generators and cooperatives.

Atenção à sociedade

Um dos nossos focos nesse sentido é o trabalho comunitário. Por meio do Programa Celesc Voluntária, desenvolvemos diversas ações em 2018 como limpeza de praias; melhoraria da infraestrutura de escolas, creches e asilos; disseminação de dicas de economia de energia; distribuição de mudas, dentre outras atividades.

Além disso, realizamos ações de engajamento e sensibilização da comunidade como oficinas do projeto Energia do Futuro, o Hábito Legal, ações de proteção à infância e o Natal Solidário em todas as nossas Agências Regionais.

No âmbito do uso seguro da eletricidade e do serviço de assistência ao consumidor, a Celesc elabora palestras sobre a prevenção de acidentes com energia elétrica e difunde o conceito de uso seguro e racional de energia para toda a sociedade catarinense.

Em 2018 realizamos mais uma etapa do concurso de redação, desenho e vídeo em parceria com a Abracopel, Associação Brasileira de Conscientização para os perigos da Eletricidade. Na oportunidade tivemos 36 escolas participantes em todo Estado de Santa Catarina e impactamos quase 19 mil alunos que discutiram sobre o tema da segurança com energia elétrica.

No âmbito do uso seguro da eletricidade e do serviço de assistência ao consumidor, a Celesc elabora palestras sobre a prevenção de acidentes com energia elétrica e difunde o conceito de uso seguro e racional de energia para toda a sociedade catarinense. Em 2017, capacitamos mais de 2.300 pessoas de diversas classes sociais e níveis de escolaridade. Internamente, os profissionais da empresa são contemplados com capacitações obrigatórias, dentro dos projetos de eficiência energética.

Palestras, eventos e seminários também são promovidos na área de concessão da Companhia. Nestas atividades são distribuidas cartilhas e panfletos com dicas e orientações pertinentes. Todos os anos, a empresa participa da Semana Nacional de Segurança promovida pela Associação Brasileira de Distribuidoras de Energia Elétrica - ABRADEE, que apresenta atividades de conscientização para o risco do uso inseguro da energia elétrica. Durante a Semana, o tema vira pauta nas notícias estaduais e na imprensa, incluindo campanhas em emissoras de rádio e mídias sociais. Materiais também são distribuídos nas lojas de atendimento, canteiros de obras, lojas de material de construção, escolas, praças e semáforos.

Caring for society

One of our focuses in this area is community work. Through the Celesc Volunteering Program we ran a range of activities in 2018 including beach cleaning; infrastructure improvements for schools, day care centers and nursing homes; distribution of energy savings tips; and distribution of trees saplings, among other actions.

In addition, we conducted community engagement and awareness activities, such as workshops, through the *Energia do Futuro* project, *Hábito Legal*, Child protection actions and charity Christmas activities at all of our Regional Agencies.

In the context of safe electricity use and assistance for customers, Celesc prepares lectures on prevention of accidents with electricity and disseminates the concept of safe and rational energy use for the entire society of Santa Catarina.

In 2018 we ran another edition of the writing, drawing and video contest in partnership with Abracopel, the Brazilian Association for Awareness for the dangers of Electricity. A total of 36 schools participated across Santa Catarina State and it reached almost 19,000 students, who discussed the subject of safety with electricity.

Relating to the safe use of electricity and customer support services, Celesc organizes lectures on the prevention of accidents with electricity, as well as disseminating the concept of safe and rational energy use to the entire society of Santa Catarina. In 2017, more than 2,300 people from different social classes and levels of schooling received training. For company employees, the energy efficiency projects include obligatory qualifications.

We promote lectures, events and seminars throughout our concession area, with the distribution of specific information (leaflets, folders) with relevant tips and guidelines. Annually, the Company participates in National Security Week, sponsored by the Brazilian Association of Electricity Distributors - ABRADEE, which involves a number of actions to raise awareness of the risks involved in the inappropriate use of electricity. During the Week, the issue features on state news programs and newspapers, including campaigns on the radio and through social media. Campaign materials are also distributed at service centers, construction sites, construction material stores, schools, squares and traffic lights.

Todos os contratos da Celesc possuem cláusulas relacionadas aos direitos humanos e são gerenciados no decorrer de sua execução pelo gestor do contrato. Como toda grande empresa, estamos atentos à nossa responsabilidade junto aos nossos parceiros de negócio. Seguimos nossos valores e contribuimos para o desenvolvimento de uma cadeia de fornecedores robusta, perene e sustentável. Dessa forma, por meio de nossa Política de Responsabilidade Socioambiental, procuramos melhorar processos e construir possibilidades de inclusão social, de respeito ao meio ambiente e transparência em todas as ações corporativas, com expansão dessa perspectiva para toda a nossa cadeia produtiva. **[412-3]**

Entre 2014 e 2016, nossos fornecedores foram convidados a participar de treinamentos que contemplaram nossas políticas corporativas, entre elas, a Política de Responsabilidade Socioambiental, que está embasada nos princípios da ISO 26000, Política de Relacionamento com Fornecedores e Código de Conduta Ética. Nesta ocasião, divulgamos as diretrizes que orientam nossa atuação no mercado e promovemos o engajamento com todos os públicos ligados direta ou indiretamente à Companhia. Afinal, cada fornecedor deve ter conhecimento da importância de sua inserção no mercado como parceiro Celesc, se comprometendo a atuar dentro das diretrizes que norteiam nosso dia a dia. **[412-3]**

aware of our responsibility to our business partners. We follow our values and contribute to the development of a robust, long-lasting and sustainable supply chain. Through our Socio-Environmental Responsibility Policy we seek to improve processes and build possibilities for social inclusion, respect for the environment and transparency in all corporate actions, with expansion of this perspective to our entire production chain. **[412-3]**

Between 2014 and 2016, our suppliers were invited to participate in training that included our corporate policies, including the Socio-Environmental Responsibility Policy, which is based on the principles of ISO 26000, the Supplier Relationship Policy and the Code of Ethical Conduct. On these occasions we disclosed the guidelines that guide our actions in the market and promote engagement with all stakeholders directly or indirectly linked to the Company. After all, each supplier must be aware of the importance of their position in the market as a Celesc partner, committing themselves to acting within the guidelines that direct our daily activities. **[412-3]**

Appendix 6 – Petrobras (Brazil) GRI Report

102-21; 102-40; 102-42; 102-43; 102-44; 103-1; 103-2; 103-3; 201-4

Relacionamento com Públicos de Interesse

Temos o compromisso de nos comunicarmos de forma consistente, coerente, verdadeira, transparente, simples e ágil no relacionamento com todos os nossos públicos, representando nossa identidade e nossas atitudes. Esse compromisso está afirmado em documentos internos, como a Política de Comunicação, os padrões de relacionamento e em nosso Estatuto.

Classificamos públicos de interesse como grupos de indivíduos e organizações que possuem questões e necessidades comuns de caráter social, político, econômico, ambiental ou cultural e que estabelecem ou podem estabelecer relações conosco e são capazes de influenciar ou serem influenciados por nossas atividades, negócios e reputação. A seleção dos públicos de interesse que serão engajados se dá por meio da priorização feita a partir da análise da relevância e impacto, além das relações já estabelecidas conosco. Os critérios podem ser diferentes de acordo com cada público de interesse.

Nossos públicos de interesse são mostrados na figura a seguir:

ENGAJAMENTO DE STAKEHOLDERS						
102-40	Lista de grupos de stakeholders	Pág. 219				✓
102-41	Acordos coletivos	Pág. 168	8	3		
102-42	Identificação e seleção de stakeholders	Pág. 221			SOC-9	✓
102-43	Abordagem no engajamento dos stakeholders	Págs. 135 a 136, 193 a 240			SOC-8; SOC-9; SOC-12; SOC-13	✓
102-44	Principais tópicos e preocupações levantadas	Págs. 193 a 207 e 219 a 240			SOC-8; SOC-9; SOC-12	✓

SOCIAL | Recursos Humanos | Gestão de Pessoas 168

Engajamento com Empregados

Para mais informação engajamento com empregados e canais de relacionamento, consultar "Relacionamento com Públicos de Interesse".

Temos como prática ouvir os nossos empregados por meio da realização de pesquisas. Até 2018, aplicávamos a Pesquisa de Ambiência, que gerava um amplo relatório sobre satisfação com o trabalho, clima e comprometimento organizacional. Esse modelo está passando por um processo de reformulação em 2019, de maneira a permitir monitoramento mais focalizado e ágil da gestão de recursos humanos por meio do acompanhamento de seus processos-chave e de aspectos relacionados à Cultura Organizacional.

Relações Sindicais

O tema Relações Sindicais está presente no nosso Código de Ética (itens 2.5 e 2.6), bem como na política de RH (diretriz 6). É válido ressaltar também que somos signatários desde 2003 do Pacto Global, cujo princípio 3 prevê o reconhecimento efetivo do direito à negociação coletiva. Conforme item 2.5 do nosso Código de Ética, reconhecemos o direito de livre associação dos nossos empregados, respeitamos e valorizamos a participação em sindicatos e não praticamos qualquer tipo de discriminação negativa com relação a nossos empregados sindicalizados.

das equipes de responsabilidade social das unidades operacionais.

As ações de relacionamento comunitário realizadas pelas unidades são registradas e monitoradas pelo Sistema de Gestão por Resultados (SIGER). Além desse sistema, realizamos reuniões periódicas de análise crítica com as equipes multidisciplinares responsáveis pelos planos de relacionamento comunitário.

Para mais informação sobre relacionamento com comunidades, consultar "Relacionamento com Públicos de Interesse".

No processo de monitoramento do relacionamento comunitário, constatamos que as ações têm levado a um maior engajamento comunitário nas ações propostas. Um desafio identificado é desenvolver instrumentos de avaliação das ações que sejam acessíveis e de fácil compreensão pelas comunidades. Além disso, em algumas comunidades, identificamos carência de lideranças atuantes e representativas.

Os resultados do relacionamento comunitário são comunicados internamente por meio de palestras para os empregados, reuniões com os gerentes e notícias em nosso portal interno.

Os impactos sociais e os resultados do relacionamento comunitário são discutidos e divulgados para as comunidades por meio das discussões realizadas nos espaços de diálogo e comitês comunitários de cada unidade. Nesses espaços, são discutidas questões relacionadas aos impactos oriundos das atividades e operações nas comunidades e ações a serem desenvolvidas para ampliar os impactos positivos e minimizar os impactos negativos.

Comunicação e Relacionamento com Fornecedores

O engajamento com fornecedores e potenciais fornecedores ocorre principalmente por meio do Canal Fornecedor (www.canalfornecedor.petrobras.com.br) e do portal Petronect (www.petronect.com.br), sendo esse último a plataforma utilizada para operacionalização das nossas contratações.

O Canal Fornecedor é o meio pelo qual disponibilizamos informações institucionais aos nossos fornecedores e potenciais fornecedores de bens e/ou serviços. É neste canal que divulgamos nossas regras de contratação, orientações sobre os processos de cadastro, habilitação e pré-qualificação de fornecedores, bem como esclarecemos o funcionamento de licitações e contratos e ações referentes a *compliance*.

O Canal Fornecedor está disponível em português e inglês para que empresas no Brasil e no exterior tenham acesso às orientações sobre nosso processo de suprimento de bens e serviços.

Realizamos, também, visitas corporativas a nossas instalações ou escritórios, tendo sido atendidos cerca de 2,8 mil visitantes da comunidade científica e acadêmica, clientes, moradores de comunidades do entorno, investidores, parceiros e representantes do poder público.

Estamos alinhados a referências e iniciativas externas que reiteram a importância do relacionamento com os públicos de interesse, tais como a Norma Internacional de Responsabilidade Social (ISO 26000), os padrões da *International Finance Corporation* (*Stakeholder Approach* – IFC), a Lei das S.As. e a Norma AA1000SES de Engajamento com Públicos de Interesse da *Accountability*.

Principais Canais de Comunicação

CANAIS DE COMUNICAÇÃO COM CLIENTES

Sítio:
www.canalcliente.com.br

SAC PETROBRAS 0800 728 9001
sac@petrobras.com.br
linkedin.com/company/petrobras
youtube.com/petrobras

Comunidade Científica e Acadêmica

Apoiamos a cooperação tecnológica com universidades e institutos de ciência e tecnologia. Em nossos investimentos em projetos de Pesquisa, Desenvolvimento e Inovação (PD&I), contamos com uma rede de parceiros tecnológicos envolvendo universidades e instituições de pesquisa. Nesse sentido, são utilizados vários canais de engajamento e articulação com a comunidade científica e acadêmica, entre eles:

- Estabelecimento de parcerias tecnológicas por meio de termos de cooperação com instituições de ciência e tecnologia e empresas em que são investidos recursos para alavancar a produtividade em PD&I;
- Reuniões técnicas com representantes institucionais e pesquisadores da comunidade acadêmico-científica para alinhamento entre ofertas e demandas tecnológicas específicas;
- Chamadas públicas para seleção, apresentação e execução de projetos de pesquisa em atendimento a desafios tecnológicos específicos;
- Promoção de *workshops* internos e externos para geração de ideias inovadoras focadas em gargalos tecnológicos críticos e aproximação entre grupos de pesquisa das universidades/institutos de pesquisa;
- Realização de palestras junto a universidades e institutos de pesquisa visando à apresentação de nossas demandas tecnológicas atuais.

Vencemos três das cinco categorias do Prêmio ANP de Inovação Tecnológica 2019. Desde a criação do prêmio, em 2013, recebemos 21 de 28 prêmios concedidos pela ANP em todas as edições. O prêmio tem como objetivo reconhecer os resultados associados a projetos de PD&I que representem inovação tecnológica para o setor de petróleo, gás natural e biocombustíveis desenvolvidos no Brasil por instituições de pesquisa credenciadas pela ANP.

Consumidores

Em 2019, atendemos aos consumidores finais de nossos produtos derivados de petróleo por meio de nossa então subsidiária Petrobras Distribuidora, conferindo capilaridade à distribuição de combustíveis. O engajamento com esse público se deu por meio de interações em eventos, tais como aqueles promovidos pelo Programa de Fidelidade Premmia e o Salão do Automóvel, além de promoções e comunicação em Redes Sociais.

Entre as iniciativas desenvolvidas para os consumidores em 2019, citamos as promoções contínuas nas lojas BR Mania e a presença constante em mídias tradicionais e redes sociais com as marcas BR Mania e Premmia.

Ao longo de 2019, as principais questões apresentadas pelos consumidores foram relacionadas ao preço dos combustíveis. As manifestações foram respondidas em nosso sítio na internet em uma seção com explicações sobre o funcionamento da precificação dos combustíveis no país.

Outras questões e preocupações apresentadas pelos nossos consumidores foram informações sobre as promoções, localização de lojas, questionamento sobre a não disponibilidade de produtos anunciados nas lojas de suas cidades, dúvidas sobre a qualidade dos produtos oferecidos e aspectos diversos do Programa de Fidelidade Premmia.

Público Interno

O engajamento com nosso público interno ocorre por meio de interação digital nos nossos canais de comunicação interna, tais como intranet, rede social, comunidades online, divulgação de mensagens, notícias e eventos presenciais e virtuais, e vinculação dos nossos resultados a indicadores de performance individual (Gerenciamento de Desempenho).

Em 2019, nosso Plano Estratégico foi divulgado diretamente pelo nosso presidente, com transmissão ao vivo para todos os nossos colaboradores, e pelos nossos canais

Principais Canais de Comunicação

CANAIS DE COMUNICAÇÃO COM A IMPRENSA

Sítio Agência Petrobras: www.agenciapetrobras.com.br
Coletivas de imprensa
Entrevistas
Notas à imprensa

Investidores

Nosso relacionamento com investidores se dá principalmente por meio de reuniões (reuniões *one-on-one* ou em grupo, conferências e *roadshows*) e apresentações da Diretoria Executiva para investidores quando divulgamos nossos resultados financeiros e em eventos como o *Petrobras Day* e o *Investor Tour*. Divulgamos ainda relatórios anuais, comunicados, fatos relevantes e esclarecimentos de notícias, além de diversas outras informações financeiras, operacionais e de gestão, disponíveis em nosso sítio na internet voltado ao relacionamento com investidores. Realizamos, também, teleconferências/*webcasts* e assembleias de acionistas e disponibilizamos atendimento por telefone, cartas e e-mails aos nossos investidores e acionistas. Durante as restrições de circulação causadas pela Covid-19, realizamos reuniões por videoconferência e eventos ao vivo (*lives*).

Estamos atentos às demandas dos nossos investidores. Os principais tópicos e preocupações levantados durante o ano de 2019 foram: negociação do aditivo ao contrato da Cessão Onerosa, gestão de portfólio e desinvestimentos, gestão da dívida e política de distribuição de dividendos, bem como a entrada em operação de novas unidades de produção e perspectivas para a curva de produção futura.

O posicionamento de investidores é levado como contribuição da área de Relacionamento com Investidores para o nosso processo de planejamento estratégico. Essas interações motivaram o aumento dos nossos relatos de informações sobre temas ambientais, sociais e de governança, muito demandados por esse público de interesse. Adicionalmente, questões levantadas pelos investidores nos *webcasts*, reuniões e conferências sobre temas estratégicos/operacionais nos motivam a aprimorar nossos processos.

Appendix 7 – Command scripts in Software R

```
# Set Working Directory
# Loading Package
library(readxl)
library(plm)
library(lmtest)

# LOADING DATA
#--------------
Banco_FS <- Banco_FS <- read_excel("Banco_FS.xlsx", sheet = "allyear")


####### Hipotese 1#####

## Hipotese 1 / Level 1
### level 1 com CFP

boxplot(Banco_FS$Level1 ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CEPt")
boxplot(Banco_FS$Level2 ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CEPt")
boxplot(Banco_FS$Level3 ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CEPt")

h1.cfpt.l1<-plm(CFPt~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1.cfpt.l1)

#Testando dependÍncia transversal (cross-sectional)
#A hipÛtese nula È de que os resÌduos atravÈs dos indivÌduos n„o est„o correlacionados
pcdtest(h1.cfpt.l1, test="cd")
#Normalidade dos resÌduos
shapiro.test(h1.cfpt.l1$residuals)

#Homocedasticidade dos resÌduos
#hipÛtese nula È a de que n„o h· homocedasticidade nos resÌduos
bptest(h1.cfpt.l1)
#Testando correlaÁ„o serial
pbgtest(h1.cfpt.l1)



### level 1 com CSP

#level 1 com CSP
h1.cspt.l1<-plm(CSPt~Level1,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cspt.l1)

plot(h1.cspt.l1)
```

```
### level 1 com CEP

h1.cept.l1<-plm(CEPt~Level1,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cept.l1)

plot(h1.cept.l1)


#######HipÛtese 1 / level 2

### level 2 com CFP


h1.cfpt.l2<-plm(CFPt~Level2,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cfpt.l2)

plot(h1.cfpt.l2)

### level 2 com CSP


#level 2 com CSP
h1.cspt.l2<-plm(CSPt~Level2,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cspt.l2)

plot(h1.cspt.l2)


### level 2 com CEP

h1.cept.l2<-plm(CEPt~Level2,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cept.l2)

plot(h1.cept.l2)

## Hipotese 1 / level 3

### level 3 com CFP


h1.cfpt.l3<-plm(CFPt~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
```

```
summary(h1.cfpt.l3)

plot(h1.cfpt.l3)


### level 3 com CSP
#level 3 com CSP
h1.cspt.l3<-plm(CSPt~Level3,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cspt.l3)

plot(h1.cspt.l3)
### level 3 com CEP
h1.cept.l3<-plm(CEPt~Level3,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h1.cept.l3)

plot(h1.cept.l3)




######Hipotese 2########
######################## CFT1 com LEVEL 1,2,3####

h1a.cfpt1.l1<-plm(CFPt1~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt1.l1)

h1a.cfpt1.l2<-plm(CFPt1~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt1.l2)

h1a.cfpt1.l3<-plm(CFPt1~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt1.l2)
######################## CFT2 com LEVEL 1,2,3####
h1a.cfpt2.l1<-plm(CFPt2~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt2.l1)

h1a.cfpt2.l2<-plm(CFPt2~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt2.l2)

h1a.cfpt2.l3<-plm(CFPt2~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt2.l3)

######Hipotese 1 b########
######################## CFT3 com LEVEL 1,2 e 3####

h1a.cfpt3.l1<-plm(CFPt3~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt3.l1)

h1a.cfpt3.l2<-plm(CFPt3~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt3.l2)
```

```
h1a.cfpt3.l3<-plm(CFPt3~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt3.l3)


######################## CFT4 com LEVEL 1,2 e 3####

h1a.cfpt4.l1<-plm(CFPt4~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt4.l1)

h1a.cfpt4.l2<-plm(CFPt4~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt4.l2)

h1a.cfpt4.l3<-plm(CFPt4~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.cfpt4.l3)

######################## CFT5 com LEVEL 1,2 e 3####


h1a.cfpt5.l1<-lm(CFPt5~Level1,data=Banco_FS)
summary(h1a.cfpt5.l1)

h1a.cfpt5.l2<-lm(CFPt5~Level2,data=Banco_FS)
summary(h1a.cfpt5.l2)

h1a.cfpt5.l3<-lm(CFPt5~Level3,data=Banco_FS)
summary(h1a.cfpt5.l3)




######Hipotese 2########
######################## CSPt1 com LEVEL 1,2,3####

h1a.CSPt1.l1<-plm(CSPt1~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt1.l1)

h1a.CSPt1.l2<-plm(CSPt1~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt1.l2)

h1a.CSPt1.l3<-plm(CSPt1~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt1.l2)
######################## CSPt2 com LEVEL 1,2,3####
h1a.CSPt2.l1<-plm(CSPt2~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt2.l1)

h1a.CSPt2.l2<-plm(CSPt2~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt2.l2)
```

```
h1a.CSPt2.l3<-plm(CSPt2~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt2.l3)

######Hipotese 3########
######################## CSPt3 com LEVEL 1,2 e 3####

h1a.CSPt3.l1<-plm(CSPt3~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt3.l1)

h1a.CSPt3.l2<-plm(CSPt3~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt3.l2)

h1a.CSPt3.l3<-plm(CSPt3~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt3.l3)



######################## CSPt4 com LEVEL 1,2 e 3####

h1a.CSPt4.l1<-plm(CSPt4~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt4.l1)

h1a.CSPt4.l2<-plm(CSPt4~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt4.l2)

h1a.CSPt4.l3<-plm(CSPt4~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CSPt4.l3)

######################## CSPt5 com LEVEL 1,2 e 3####

h1a.CSPt5.l1<-lm(CSPt5~Level1,data=Banco_FS)
summary(h1a.CSPt5.l1)

h1a.CSPt5.l2<-lm(CSPt5~Level2,data=Banco_FS)
summary(h1a.CSPt5.l2)

h1a.CSPt5.l3<-lm(CSPt5~Level3,data=Banco_FS)
summary(h1a.CSPt5.l3)



######Hipotese 3########
######################## CEPt1 com LEVEL 1,2,3####

h1a.CEPt1.l1<-plm(CEPt1~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt1.l1)

h1a.CEPt1.l2<-plm(CEPt1~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt1.l2)
```

```
h1a.CEPt1.l3<-plm(CEPt1~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt1.l2)
######################## CEPt2 com LEVEL 1,2,3####
h1a.CEPt2.l1<-plm(CEPt2~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt2.l1)

h1a.CEPt2.l2<-plm(CEPt2~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt2.l2)

h1a.CEPt2.l3<-plm(CEPt2~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt2.l3)

######Hipotese 3########
######################## CEPt3 com LEVEL 1,2 e 3####

h1a.CEPt3.l1<-plm(CEPt3~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt3.l1)

h1a.CEPt3.l2<-plm(CEPt3~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt3.l2)

h1a.CEPt3.l3<-plm(CEPt3~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt3.l3)



######################## CEPt4 com LEVEL 1,2 e 3####

h1a.CEPt4.l1<-plm(CEPt4~Level1,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt4.l1)

h1a.CEPt4.l2<-plm(CEPt4~Level2,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt4.l2)

h1a.CEPt4.l3<-plm(CEPt4~Level3,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h1a.CEPt4.l3)

######################## CEPt5 com LEVEL 1,2 e 3####

h1a.CEPt5.l1<-lm(CEPt5~Level1,data=Banco_FS)
summary(h1a.CEPt5.l1)

h1a.CEPt5.l2<-lm(CEPt5~Level2,data=Banco_FS)
summary(h1a.CEPt5.l2)

h1a.CEPt5.l3<-lm(CEPt5~Level3,data=Banco_FS)
summary(h1a.CEPt5.l3)
```

```
######## Hipotese 4########
## ######Hipoese 3 / Extension#########


boxplot(Banco_FS$CFPt ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CFP")

### Extension com CFP

h2.cfpt.ext<-plm(CFPt~Extension,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h2.cfpt.ext)

plot(h2.cfpt.ext)


### Extension com CSP

boxplot(Banco_FS$CSPt ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CSP")

h2.cspt.ext<-plm(CSPt~Extension,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h2.cspt.ext)

plot(h2.cspt.ext)



### Extension com CEP

boxplot(Banco_FS$CEPt ~ Banco_FS$Year,col="orange",xlab="Ano",ylab="CEP")

h2.cept.ext<-plm(CEPt~Extension,data=Banco_FS,index=c("ID","Year"),model="random")

summary(h2.cept.ext)

plot(h2.cept.ext)



########### Hipotese 4########
## Hipotese 3 / Eng.Total


### Eng.Total com CFP

h3.cfpt.engt<-plm(CFPt~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3.cfpt.engt)

######################## CFPt1 com Eng.Total####
```

```
h3a.CFPt1.engt<-plm(CFPt1~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CFPt1.engt)


######################## CFPt2 com Eng.Total####
h3a.CFPt2.engt<-plm(CFPt2~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CFPt2.engt)


######Hipotese 3 B########
######################## CFPt3 com Eng.Total####

h3a.CFPt3.engt<-plm(CFPt3~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CFPt3.engt)


######################## CFPt4 com Eng.Total####

h3a.CFPt4.engt<-plm(CFPt4~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CFPt4.engt)


######################## CFPt5 com Eng.Total####

h3a.CFPt5.engt<-lm(CFPt5~Eng.Total,data=Banco_FS)
summary(h3a.CFPt5.engt)




######Eng.Total com CSP########
h3.cspt.engt<-plm(CSPt~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3.cspt.engt)

######################## CSPt1 com Eng.Total####

h3a.CSPt1.engt<-plm(CSPt1~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CSPt1.engt)


######################## CSPt2 com Eng.Total####
h3a.CSPt2.engt<-plm(CSPt2~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CSPt2.engt)


######Hipotese 3 B########
######################## CSPt3 com Eng.Total####

h3a.CSPt3.engt<-plm(CSPt3~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CSPt3.engt)
```

```
######################## CSPt4 com Eng.Total####

h3a.CSPt4.engt<-plm(CSPt4~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CSPt4.engt)


######################## CSPt5 com Eng.Total####

h3a.CSPt5.engt<-lm(CSPt5~Eng.Total,data=Banco_FS)
summary(h3a.CSPt5.engt)



##########CEPt#####

h3.cept.engt<-plm(CEPt~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3.cept.engt)


######Hipotese 3A########
######################## CEPt1 com Eng.Total####

h3a.CEPt1.engt<-plm(CEPt1~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CEPt1.engt)


######################## CEPt2 com Eng.Total####
h3a.CEPt2.engt<-plm(CEPt2~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CEPt2.engt)


######Hipotese 3 B########
######################## CEPt3 com Eng.Total####

h3a.CEPt3.engt<-plm(CEPt3~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CEPt3.engt)


######################## CEPt4 com Eng.Total####

h3a.CEPt4.engt<-plm(CEPt4~Eng.Total,data=Banco_FS,index=c("ID","Year"),model="random")
summary(h3a.CEPt4.engt)


######################## CEPt5 com Eng.Total####

h3a.CEPt5.engt<-lm(CEPt5~Eng.Total,data=Banco_FS)
summary(h3a.CEPt5.engt)
```